Tennessee Comptroller of the Treasury

Office of Research and Education Accountability

Evaluation of Tennessee's Retail Accountability Program

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Introduction

In 2012, the Tennessee General Assembly created the Retail Accountability Program (RAP) to improve sales tax compliance among retailers and initially included beer and tobacco only. Legislation expanded the program in 2015 to include other items such as nonalcoholic beverages (e.g., bottled fruit juice, bottled water), soft drinks, candy, and certain nonperishable foods, such as chips. The Tennessee Department of Revenue (TDOR) administers the program.

A 2022 update required that the Comptroller of the Treasury evaluate RAP to "determine the effectiveness and efficiency of the program." Through this review, the Comptroller's Office presents six conclusions relating to the effectiveness and efficiency of the program starting on page 26 of this report. The report also includes one policy option for TDOR.

Research methods

Comptroller staff worked with TDOR auditors who provided RAP financial data, relevant documents (such as TDOR's internal 2018 Retail Accountability Guide), and answers to questions in interviews and email.[A] Comptroller staff also reviewed the TDOR website to gather background information and evaluate publicly available information. Additionally, Comptroller staff interviewed staff from the Texas Comptroller of Public Accounts and the Alabama Department of Revenue and reviewed relevant websites, FAQs, and technical documentation related to those peer states' programs that are similar to RAP.

Key terms:

TR3 – TDOR's current software used to identify retailers that are under-remitting sales tax.

Inquiry letter – the notification sent from TDOR to retailers of a potential remitted tax discrepancy, including the value of the discrepancy.

Notice of Proposed Assessment (NOPA) – the notification of proposed assessment sent from TDOR to retailers of the amount of tax and penalty due.

Financial data

The financial data used in this evaluation are measured by fiscal year (FY) but in two different time categories: audit period and assessment period. The Tennessee state fiscal year calendar goes from July 1 to June 30. An audit period is a time frame when retailer's sales occur. TDOR investigates audit periods after they have occurred (e.g., September 2021 may be investigated in August 2022). The assessment period is the time frame when an assessment is issued (i.e., after a purchase and sale have occurred, been filed to TDOR, and investigated). This report references all financial data by fiscal year. However, while much of the data can be counted based on the fiscal year when an assessment occurred, certain metrics can only be based on the audit period when a retailer made their purchase.

The data used in this report start in FY 2013, when the program began, and go through FY 2023. Complete data through June 30, 2024, was not available across all data points at the time of the analysis. As a result, all comparative exhibits and analysis go through FY 2023 to display complete 12-month comparisons. Where complete FY 2024 financial data does exist, those values are included in the appropriate exhibit notes.

TDOR auditors used the Revenue Integrated Tax System to administer RAP from FY 2013 until FY 2017. Since March 2017, TDOR auditors have used the Tennessee Revenue, Registration, and Reporting system (TR3), which allows for greater accuracy, improved identification, and easier reporting of assessments and collections. TR3 also has the capability to retrieve more extensive financial data, which creates issues when making comparisons over these years. However, because the two tax systems have different scopes and generate different reports, data from FY 2013 through FY 2017 and from FY 2017 through FY 2023 cannot always be compared. As such, comparison of data from FY 2013 through FY 2023 will remain high level and less detailed, while more detailed analysis of RAP financial data is shown for FY 2017 through FY 2023 because TR3 allows for more in-depth analysis.

[A] TDOR auditors are members of the TDOR Audit Division's Retail Accountability and Tobacco Unit.

Comptroller staff obtained financial data from Edison, the state's accounting system, to determine the costs of administering the program for this review. The general ledger data for TDOR was extracted for each state fiscal year since the creation of the RAP program and filtered to only show personnel costs for employees that worked for the program. The list of employees was provided by TDOR. Costs recorded for TDOR employees in FY 2012 and FY 2013 were excluded as the data for those years did not yet include information required for proper analysis.

All financial amounts and figures included in this report are not adjusted for inflation.

Interviews and emails

Comptroller staff interviewed TDOR as well as directors of relevant business associations, including the Tennessee Grocers and Convenience Store Association, the Tennessee Fuel and Convenience Store Association, and the Beverage Association of Tennessee. These associations represent retailers and wholesalers in Tennessee and were involved in the creation and adjustments to RAP. Comptroller staff also gathered information via email from the Tennessee chapter of the National Federation of Independent Business and the Tennessee Malt Beverage Association.

Additionally, Comptroller staff interviewed two subject matter experts who administer the Retailer Inventory Tracking System (RITS) program in Texas and a subject matter expert who administers the Wholesaler Retail Accountability Program (WRAP) in Alabama.

Survey of retailers and wholesalers

Comptroller staff surveyed wholesalers and retailers on RAP between May 22 and June 10, 2024.[B] The survey was emailed to 978 unique email addresses of wholesalers (253) and retailers (725). This survey yielded 82 wholesaler and retailer responses, of which 43 were wholesalers (17 percent response rate) and 39 were retailers (5.4 percent response rate).

Given the low response rate and therefore the unreliability of attributing the opinions of the respondents of the survey to the broader population of wholesalers and retailers, survey responses were not used in the determination of the conclusions drawn for this report. Selected responses are included in Appendix A of this report.

Background

Since the sales tax was first introduced in Tennessee in 1947, wholesalers have been required to maintain records of their sales to retailers. These records were then required to be made available to the state for review. Over the years, record details have changed, and the creation and adjustment of RAP is one of the most recent changes.

RAP was created during an era when annual budget reductions were required to meet the state government's constitutional obligation to enact a balanced state budget. As a means of improving sales tax compliance, one of the program's intended effects was to improve the state's financial position. Accurate reporting and remittance of sales tax by retailers is particularly important to Tennessee because the state is more dependent on sales tax revenues than most states. The state's general sales tax as well as taxes on alcohol and tobacco accounted for 66 percent, or $14.6 billion, of state government revenue in FY 2024.

> The Retail Accountability Program identifies retailers that underreport, either willfully or accidentally, the amount of sales taxes collected and remitted to the state.
>
> Through the program, the reported sales of wholesalers to retailers are compared with retailers' reported sales. The amount of sales taxes that should have been collected by a retailer based on a conservative estimate and thresholds set by the Tennessee Department of Revenue is compared with the actual amount collected to identify underreporting.

[B] Email addresses for retailers were provided by associations of retailing businesses and, thus, are a subset of all retailers that sell products subject to RAP. TDOR provided email addresses for wholesalers of products subject to RAP.

Program history

Tennessee looked to the example of Texas in creating the Retail Accountability Program. A 2005 audit found 227 Texas convenience stores owed a total of $28.6 million in tax revenues to the state.[C] In 2007, Texas passed legislation to allow the state's comptroller to require wholesalers and distributors of many alcoholic and tobacco products to submit monthly reports to the state of their sales to retailers. The sales figures in the wholesalers' reports and sales figures in the retailers' reports could then be cross-referenced to identify retailers not paying sales tax in full.

Around the same time, similar issues were identified in Tennessee, with 80 percent of the cases referred by TDOR staff to the department's special investigations unit coming from beer and tobacco retailers. Tennessee's RAP was created in 2012 to identify beer and tobacco retailers that underreport the amount of sales taxes collected from these items and submitted to the state.[D] Through the program, the reported sales of wholesalers are compared with retailers' reported sales to the public. The amount of sales taxes that should have been collected by a retailer is then compared with the reported amount to identify underreporting.

In 2015, the General Assembly widened the program's scope beyond beer and tobacco sales (later to be considered RAP 1 products) to include other items likely to be sold at convenience stores and gas stations. The 2015 expansion brought nonalcoholic beverages, soft drinks, candy, and certain nonperishable foods (referred to as RAP 2 products) within the program's scope. Perishable foods excluded from RAP include foods like fruits, vegetables, frozen and refrigerated meats, cheeses, deli meats and other deli products, salads, frozen meals, and other similar frozen foods.

One year after the program expanded to cover RAP 2 products, the General Assembly made changes to the program. Among those changes were:

- clarifying that the program's scope did not include perishable or frozen food products;
- determining that wholesalers making sales of $500,000 or less of candy, food, and nonalcoholic beverages are not required to file these information reports;
- identifying which wholesalers and retailers were required to submit documentation to TDOR; and
- allowing wholesalers and retailers to submit the required documentation using a paper or electronic format. (Under an earlier provision, an electronic format was required.)

The 2016 changes were created to address concerns raised by the Tennessee business community about the expanded 2015 scope. Public Chapter 907 of 2016 added an additional step to the RAP process, requiring TDOR to begin sending inquiry letters to identified retailers. Through the inquiry letter step, retailers were given an earlier opportunity to address the reasons for their identification by RAP. After receiving an inquiry letter, retailers may submit information to TDOR that can result in their RAP case being dismissed. If the retailer does not submit information, or if the information submitted is not sufficient to dismiss the case, TDOR then issues a Notice of Proposed Assessment (NOPA) to the retailer.[E]

[C] The audit was conducted by the State of Texas and examined 272 convenience stores with sales that consisted largely of beer, wine, and tobacco products.
[D] Other alcoholic products like wine, spirits, and other liquors as well as certain tobacco products like those associated with vaping are not included in RAP.
[E] Both the inquiry letter and the NOPA were added to state law by Public Chapter 907 of 2016.

Exhibit 1: The General Assembly widened the Retail Accountability Program's scope beyond beer and tobacco in 2015

RAP 1 products (2012-present)	RAP 2 products (2015-present)
Beer (wine, distilled liquor, and other alcoholic beverages are not included)	Nonalcoholic beverages (e.g., bottled fruit juice, bottled water, etc.)
Tobacco (vaping products not included)	Soft drinks
	Candy
	Nonperishable food (e.g., chips, snacks, etc., but excluding frozen foods, produce, and similar items)

Notes: (1) The 2015 product expansion brought nonalcoholic beverages, soft drinks, candy, and certain foods within the program's scope. (2) Wholesalers are permitted to send more data than required to TDOR, which can include non-RAP items. This data can then be used to compare additional items outside of the required RAP items. These items are included in RAP 2 items when assessed.
Source: Tennessee Department of Revenue.

A legislative sunset was also introduced in 2016, to go into effect in 2019, for RAP 2 items. The General Assembly extended the sunset date for RAP 2 items in 2019 and again in 2022, when it extended the program to 2025 as well as required the Comptroller of the Treasury to "determine the effectiveness and efficiency of the program." In March 2024, the Comptroller's Office of Research and Education Accountability released a legislative brief to provide an overview of the program, including its history and process, in advance of this effectiveness and efficiency review.[F]

The Retail Accountability Program process

Process overview

The Tennessee RAP process involves three primary stakeholders:

- Retailers – businesses that sell goods to the public (e.g., convenience stores and gas stations)
- Wholesalers – businesses that sell goods to retailers (e.g., a wholesaler sells goods to convenience stores)
- TDOR – the state agency that operates RAP through the Audit Division's Retail Accountability and Tobacco Unit. The unit contains about seven auditors.

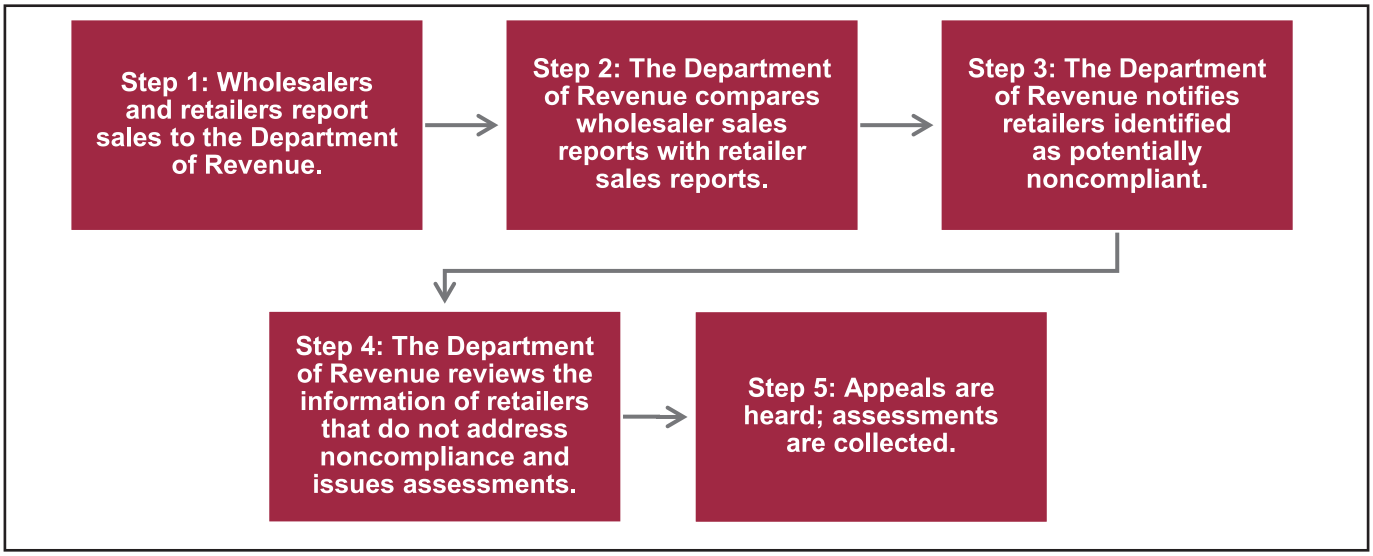
These stakeholders are involved in each step of the RAP process in different roles. The process includes five steps:

1. retailers and wholesalers report sales to TDOR,
2. TDOR compares wholesaler sales reports with retailer sales reports,
3. TDOR notifies retailers identified as potentially noncompliant,
4. TDOR reviews the information of retailers that do not address noncompliance and issues assessments, and
5. any appeals are heard and adjudicated and TDOR collects unremitted sales taxes and any assessed penalties on retailers found to owe taxes. TDOR also assesses penalties on wholesalers found to have submitted incorrect information or failed to submit required documentation.

Exhibit 2 explains each of these steps in further detail.

[F] This overview can be viewed at this URL: https://comptroller.tn.gov/content/dam/cot/orea/advanced-search/2024/RAPBrief.pdf.

Exhibit 2: The Retail Accountability Program process involves five key steps



Source: Comptroller analysis of TDOR processes.

Identification software

Since RAP began in FY 2013, the tax system TDOR uses to administer the program has changed. From FY 2013 until FY 2017, TDOR used the Revenue Integrated Tax System to administer RAP. As of March 2017, TDOR switched to a new tax system called TR3.

There are differences in the data produced by these two tax systems, because they have different scopes and generate different reports. Thus, data from these systems cannot always be compared. Data for FY 2013 through FY 2016 is available only in the Revenue Integrated Tax System, for example. As such, comparison of data from FY 2013 through FY 2023 will remain high level because that time period spans both tax systems. For data from FY 2017 through FY 2023, however, the Comptroller's staff has performed a more detailed analysis.

The TR3 tax system provides greater accuracy, improved identification, and easier reporting of assessments and collections. Both the Revenue Integrated Tax System and TR3 could be used by TDOR auditors to compare wholesaler reporting of sales to retailers in the state to the remitted sales tax of retailers in the state. However, TR3 has the ability to analyze, categorize, and sort data more easily and accurately. TR3 allows TDOR to quickly apply a conservative markup to retailer data, compare the retailer data with wholesaler data, and identify any retailers above set dollar amount thresholds. The Revenue Integrated Tax System required additional effort to complete the same steps, making TR3 a substantial improvement from the Revenue Integrated Tax System due to the increased detail and efficiency it provides.

How RAP works

Step 1: Retailers and wholesalers report sales to the Department of Revenue

Retailers must file a sales and use tax return to TDOR following the end of each reporting period.[G] This reporting requirement existed prior to the implementation of RAP. If retailers have any goods damaged or stolen, they are expected to submit the relevant documentation so that damaged and stolen goods are not counted with sold goods when assessing potential noncompliance.

[G] Taxpaying businesses submit sales and use taxes to TDOR either monthly, quarterly, or annually on the 20th day of the month following the period. The default filing frequency is monthly, which applies to most retailers. Taxpaying businesses with an average annual sales tax liability of $1,000 or less per month may choose to file quarterly. Those filing annually are generally manufacturers, wholesalers, and marketplace sellers that solely make sales through a marketplace facilitator collecting state sales and use tax.

Wholesalers that sell RAP-covered items to retailers file a monthly or quarterly sales report with TDOR. Wholesalers that sell non-RAP items to retailers in addition to RAP items will also report sales of non-RAP items to TDOR alongside the RAP items reported. However, the wholesalers are required to submit reports only on the sales of RAP items.[H]

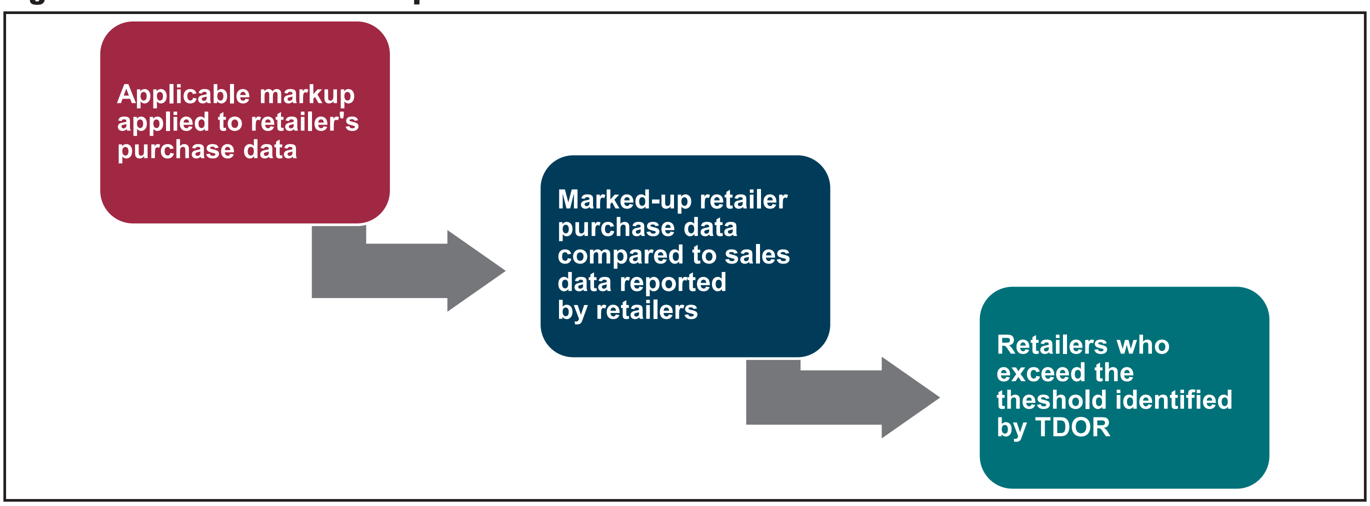
Wholesalers are exempt from RAP if they meet two criteria: they do not sell beer or tobacco products and their sales of other RAP items do not exceed $500,000. Wholesalers that sell RAP-covered items to an affiliated retailer are also exempt from the program.[I]

Step 2: The Department of Revenue compares wholesaler sales reports with retailer sales reports

TDOR uses its TR3 tax system to evaluate the amount of sales taxes collected by retailers as compared to a conservative estimate of the amount of sales tax that should have been collected. The conservative estimate takes the amount of sales to a retailer, reported by the wholesaler, and applies a 15 percent markup to account for the retailer's profit on beer and tobacco. A markup of 15 percent on beer and tobacco is considered conservative as retailers typically apply a markup on goods of between 40 and 100 percent, according to TDOR. No markup is applied to the other RAP items of nonalcoholic beverages, soft drinks, candy, nonperishable food, and other non-RAP items which wholesalers may have included in their reports, making estimates even more conservative for these items.

TDOR auditors then use TDOR's TR3 tax system to set a dollar value variance threshold to identify retailers that have not remitted the expected amount of sales taxes to the state. This threshold is an adjustable dollar amount beyond the conservative estimate which retailers must have exceeded to be identified by TR3. This, in addition to conservative markups, limits TR3 from identifying low levels of non-remittance by retailers. Given the thresholds and the conservative markup, those retailers identified through RAP are, according to TDOR, highly likely to be out of compliance, whether accidentally or purposefully.[J]

Exhibit 3: TDOR uses a markup, a sales comparison, and thresholds to identify the most significant cases of underreported sales tax



Source: Comptroller analysis of TDOR processes.

[H] Wholesalers are permitted to send more data than required to TDOR, which can include non-RAP items since those are usually commingled with RAP 2 items in the wholesalers' sales report data. This data is then used to compare additional items outside of the required RAP items and included in RAP assessments with RAP items. TDOR assumes a zero percent markup in value on non-RAP items.

[I] An affiliate is a retailer that is wholly or partially (i.e., 50 percent or more) owned by the wholesaler or vice versa. Wholesalers who sell to an affiliated retailer are large entities that necessitate an audit by TDOR's field audit team to reconcile tax remittance discrepancies.

[J] Some in the business community alleged that RAP, as administered, discriminates against certain non-US born retailers. Based on the use of the TR3 tax system to automatically identify noncompliant retailers and analysis of RAP financial penalty data, Comptroller staff did not find evidence of discrimination in either the process or the application of RAP. Representatives from Texas and Alabama were not aware of any serious allegations from the business community pertaining to discriminatory application of the Texas RITS or Alabama WRAP programs against any specific community. Both states, like Tennessee, use analytical techniques that solely rely on cost of goods sold, revenues, or other factual information to determine which retailers should be assessed or audited for compliance with tax law, so they were unaware of any discrimination or targeting that could occur based on administration of the programs.

Step 3: The Department of Revenue notifies retailers identified as potentially noncompliant

Based on the analysis in the previous step, TDOR sends inquiry letters to retailers found to be potentially noncompliant, who have 30 days to review and address the issue.[K]

According to TDOR, there are three common sources of issues that may cause accidental discrepancies to be identified by TR3:

- Wholesaler data issues – can include double counted sales, inaccurate prices, and other misreported sales figures.
- Tobacco buydowns – an incentive from a manufacturer which is offered to retailers in order to reduce the price of tobacco and tobacco products to the retailer's customers.
- Retailer inventory issues – can include situations ranging from misreported or unreported theft or damage of products to a new retail establishment failing to submit required information when building up inventory.

Each of these issues, as well as others, can cause discrepancies resulting in TR3 misidentifying a retailer.

Addressing these issues can take the form of submitting the missing sales tax collections to TDOR – as human error may be the cause – or submitting missing information about their purchases and sales. In the case of stolen or damaged goods, the retailer may not have filed a police report and submitted the necessary documentation to TDOR.[L]

Other retailers may maintain they collected and submitted the correct amount of sales taxes and that the department erred in identifying them as potentially noncompliant.

Step 4: The Department of Revenue reviews the sales and purchase information of potentially noncompliant retailers and issues assessments

Retailers that do not adequately address the reason they were identified as potentially noncompliant or maintain they remitted the correct amount of sales tax are then reviewed by TDOR to determine if the retailer is compliant. If the audit determines that a retailer has not remitted sales tax in full, the retailer is issued a NOPA that quantifies the tax and penalty owed.

In cases where a TDOR audit determines there was "good and reasonable cause" for the discrepancy that triggered a penalty, TDOR may waive the penalty in its entirety.

Step 5: Appeals are heard and assessments are collected

After the NOPA is sent, retailers are presented with another 30-day opportunity to review the proposed assessment of unremitted sales tax, penalties, and interest on the unremitted sales tax. Retailers may provide additional information to have the assessed amount adjusted down prior to the assessment becoming finalized.

According to TDOR, the most common reasons for adjustments are the same as those mentioned in step 3: wholesaler data issues, tobacco buydowns, and retailer inventory issues.

Retailers that maintain the NOPA is incorrect can appeal their case to TDOR's Administrative Hearing Office. (RAP appeals are referred to as informal conferences.) A TDOR Hearing Officer decides whether to cancel the RAP assessment, change it, or uphold the amount owed. The most common outcome of appeals is that the amount owed is upheld.

[K] Inquiry letters were originally not a part of the process but began to be required because of the 2015 legislative update which expanded RAP. Inquiry letters began to be used in February 2016.

[L] Any goods damaged or stolen are excluded from sold goods and thus are not included when calculating the amount of sales tax owed to the state. Retailers must submit relevant documentation to the state to classify goods as damaged or stolen.

If the TDOR Hearing Officer determines the retailer owes taxes and penalties following the appeal, or if the retailer does not appeal the NOPA, the amount owed is finalized. The retailer must then pay the taxes and interest owed as well as any applicable penalties. Retailers that continue to dispute their RAP assessment can take their case to the courts.

Penalties for noncompliance include negligence penalties and fraud penalties. For the first three infractions, negligence is assumed, and retailers are required to pay the missing taxes as well as a negligence penalty, which amounts to 10 percent of the amount of taxes owed. Beginning with the fourth infraction – and for all subsequent infractions – attempted fraud is assumed. Retailers must pay the missing taxes as well as a fraud penalty, which amounts to 100 percent of the amount of taxes owed.

TDOR may increase negligence penalties to fraud penalties before the fourth infraction if the department's audit determines the retailer intentionally did not remit the correct amount of sales tax. TDOR may also waive the penalty in its entirety if the investigation determines that there was "good and reasonable cause" for the discrepancy that resulted in the penalty.

When a retailer's reporting behavior has not appeared to improve after multiple RAP assessments, division staff may refer the retailer for a field audit. In addition to validating office audit results, RAP-referred field audits may also reveal additional unpaid tax by the retailer.

Wholesalers may also receive financial penalties if they fail to submit required documentation or submit inaccurate information to TDOR.[M] The wholesaler's penalty begins at $250 each month with the penalty capped at no more than $2,500 per month. Wholesaler penalties are generally waived after the wholesaler submits the required sales reports as the purpose of the wholesaler penalty is for TDOR to receive the sales data.

Comparisons to other states

A review of programs similar to RAP in Texas and Alabama was conducted in order to identify areas for improvement within RAP and also highlight differences between the three programs. Comptroller staff interviewed subject matter experts from the Texas Comptroller of Public Accounts and the Alabama Department of Revenue and reviewed relevant websites, FAQs, and technical documentation to gain a better understanding of the RITS and WRAP programs.

Tennessee's Retail Accountability Program was initially modeled after the Retailer Inventory Tracking System (RITS) in Texas, which was created by Texas House Bill 11 and signed into law on May 18, 2007, by Governor Rick Perry.[1] Additionally, the State of Alabama created a similar program known as the Wholesaler Retail Accountability Program (WRAP), which was signed into law by Governor Kay Ivey on May 16, 2017.[2] The Texas Comptroller of Public Accounts[N] is responsible for the RITS Program, while the Alabama Department of Revenue is responsible for WRAP. Both of these departments are similar in purpose to the Tennessee Department of Revenue.

Scope of reporting requirements

Tennessee's RAP allows retailers and wholesalers to submit their sales reports digitally as well as through paper reports; however, according to TDOR, only one wholesaler submits paper sales data as of August 2024. Texas allows wholesalers and retailers to submit paper reports, but paper submissions are rare. In Alabama, WRAP requires wholesalers and retailers to submit their sales reports digitally. The RITS and WRAP systems both have an online portal where wholesalers and retailers are required to submit their sales reports on a monthly basis.

[M] Wholesalers may be penalized for submitting inaccurate information either knowingly or due to negligence.
[N] The Texas State Auditor's Office is the legislative auditing department for Texas, not the Texas Comptroller of Public Accounts.

While the programs in Tennessee, Alabama, and Texas are similar, reporting requirements differ. All three states require the reporting of beer and tobacco in their respective programs, and Alabama and Texas also require wine to be reported. Texas is alone in its requirement for the reporting of distilled liquor and differentiates between tobacco and cigarettes in their reporting requirements. Tennessee's RAP is the only program of the three states that requires the reporting of soft drinks, other nonalcoholic beverages, candy, and nonperishable food items.

The program in Texas requires convenience stores, grocery stores, other specialty tobacco retailers and wholesalers, and the distributors of wine to submit reports. This includes private clubs, auctioneers, bars, wineries, breweries, brewpubs, package stores, liquor stores, and other retailers that hold licenses to sell or distribute wine. Additionally, Texas uses depletion analysis[O] to determine how much product was sold at bars, clubs, and other establishments selling the products to customers. Since Tennessee's RAP solely applies to the sale of beer as a whole unit (such as a can, bottle, case, or keg), TDOR does not use this technique to determine how much beer was sold from a whole unit. Alabama's program is similar to Tennessee's program and requires only wholesalers to submit new reports, which are then compared to existing retailer reports.

Exhibit 4: Comparison of the Tennessee, Texas, and Alabama retail accountability programs

Point of comparison	Tennessee RAP	Texas RITS	Alabama WRAP
Products covered	Beer, tobacco, nonalcoholic beverages (e.g., fruit juice bottles, water bottles, etc.), soft drinks, candy, nonperishable foods	Beer, wine, distilled liquor, tobacco, cigarettes	Beer, wine, tobacco
Report submission	Digital and paper	Digital and paper	Digital only
Reporting frequency	Variable based on revenue	Monthly	Monthly

Source: Tennessee Comptroller of the Treasury, informed by interviews and/or written correspondence with Texas and Alabama state employees.

Penalties

Penalties for noncompliance also differ between states. In Texas, if the taxpayer owes the state more than $10,000 and has an error rate of 25 percent or higher, they are referred to the state's fraud committee. If the fraud committee determines that fraud has occurred, then the penalty is an additional 50 percent owed tax.[P] By comparison, the penalty in Tennessee is an additional 10 percent taxes owned for negligence and an additional 100 percent of taxes owed for fraud.

Overall impact of Texas and Alabama programs

Experts from both Texas and Alabama stated that their programs have helped their states collect unremitted tax revenues. The two programs have helped both states identify and punish fraud within the system among retailers. The subject matter expert from Texas estimated that the RITS program has about 200 audit assignments per year that collect between $30,000 and $40,000 per assignment. In contrast, the subject matter expert from Alabama was able to provide exact data on the tax collections related to the WRAP program. In 2023, the program was responsible for collections of $5,093,824.

Neither state has measured their program's impact on the overall behavior of the retailing businesses when it comes to compliance with tax law. Neither state has published an analysis pertaining to the behavioral changes by retailers using tax remittance trends since the creation of these programs. In contrast, TDOR has performed statistical analyses of RAP's impact on the behavior of affected retailers. See page 23 of this report for more information.

[O] Depletion analysis is an accounting technique used to determine the expense or cost of goods sold when an entire product or resource is not used, but rather a portion of it is used. In Texas, depletion analysis is used to determine the cost of goods sold when only portions of bottles of wine or distilled liquor were used, either when sold by the glass or combined into mixed drinks.

[P] See page 10 for more information on how Tennessee imposes penalties for negligence and fraud.

Similar issues of administering the program

While the subject matter expert from Alabama did not cite any unforeseen issues or complications administering the program, the subject matter experts from Texas stated that they encountered some issues related to the technical aspects of the program, including taxpayers being confused on how to upload their data into the RITS online portal or encountering long wait times with customer service around the end of the month when the taxpayers are required to submit their reports. Similarly, taxpayers in Tennessee were originally confused about how to upload their data during the 2015 expansion of RAP, but these issues have since been resolved.

RAP outcomes

RAP assessments result in various types of revenue: unremitted sales tax, negligence penalties (10 percent of assessed sales tax), fraud penalties (100 percent of the assessed sales tax), and interest due on unremitted sales tax.[Q]

Key terms:

Initial assessment – the sales tax and penalty amount determined by TDOR to potentially be owed by a retailer in the inquiry letter.

Proposed assessment – the total amount of sales tax and penalties included in the NOPA.

Adjustment – the amount of an assessment which is decreased due to additional information provided to TDOR by retailers.

Collections – the amount of additional sales tax, penalties, and interest remitted by retailers to TDOR after adjustment.

Unremitted sales taxes consist of a state portion as well as a local portion. The state retains the state portion of all unremitted taxes, interest, and penalties assessed, and the local portion of the collection is distributed by TDOR to local governments. The local portion varies based on each local government's local sales tax rate.

There are three stages of RAP assessments. The first stage is the initial assessment, during which TDOR notifies retailers in an inquiry letter of how much is potentially owed in unremitted sales tax and penalties. The amount potentially owed may be reduced if the retailer provides additional information to TDOR.

The second stage is the proposed assessment. Retailers receive a NOPA from TDOR enumerating how much money is owed. As with the first stage, retailers may provide TDOR with additional information that reduces the amount owed. The third stage is collections, when the amount of unremitted sales tax, penalties, and interest is ultimately collected from a retailer by TDOR.

Exhibit 5: The RAP assessment process consists of three stages

The **initial assessment** is the monetary amount in the inquiry letter to the retailer, which will become a final assessment in the NOPA if no adjustments are made.

The **proposed assessment** includes the monetary amount assessed in the NOPA letter to the retailer, after adjustments, which will become the amount paid if no further adjustments are included or appeals heard.

Collections include the amount actually paid to TDOR due to the RAP assessment.

Source: OREA analysis of RAP assessment process.

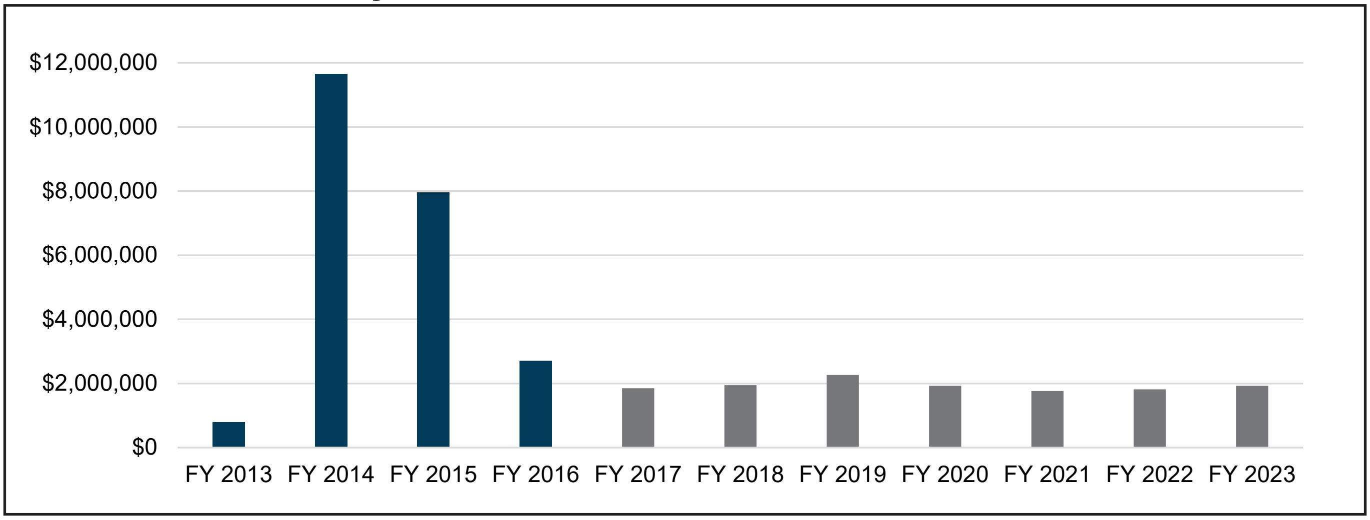
[Q] Interest is not applied to either negligence or fraud penalties.

The RAP assessment process cannot be uniformly compared over time. TDOR's change from the Revenue Integrated Tax System to TR3 in 2017 makes detailed comparisons and analysis only possible from FY 2016 through FY 2023. However, higher level data, such as collections, can be observed from RAP's inception in FY 2013 through FY 2023. Additionally, changes in the RAP process, such as the introduction of inquiry letters and NOPAs, also makes certain stages only comparable across certain years.

Collections since RAP's creation in FY 2013

RAP resulted in $36.6 million in collections due to paid assessments from FY 2013 through FY 2023. Over half (63.1 percent) of these collections were in the initial four years of the program, FY 2013 through FY 2016. Since FY 2017 RAP has collected, on average, $1.9 million each year.[R]

Exhibit 6: RAP collections were highest in the program's early years and have settled at around $2 million annually



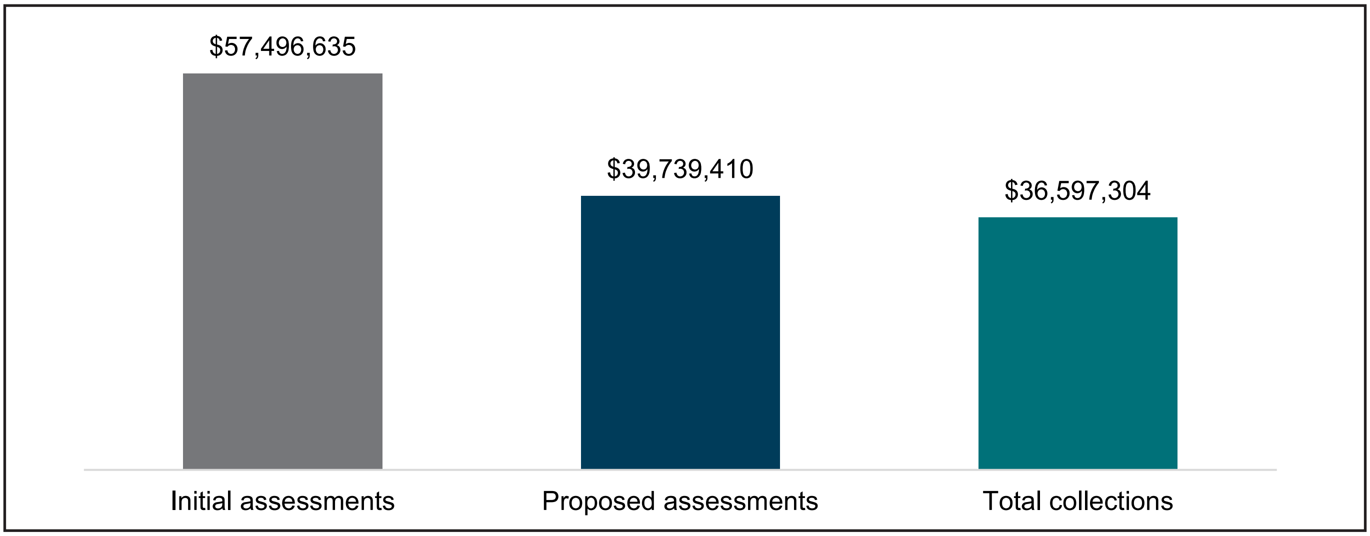
Note: TDOR has reported that the preliminary FY 2024 collections are $2,061,330.77.
Source: Comptroller analysis of data provided by TDOR.

This decline in RAP collections starting in FY 2016 is likely due to the adjusted behavior of retailers in Tennessee. As RAP became more well known and broadly experienced by retailers, it is probable that retailers began to improve tax remittance to avoid future RAP assessments and penalties. Another possible contributing factor, though small, to decreased collections could be increased consumption of vape products, which are not included in RAP, instead of cigarettes.

Actual collections are generally lower, especially after adjustments, than the initial or proposed assessments. This is, at least in part, due to some assessments being paid in installments rather than immediately. As of FY 2023, TDOR had collected $3.1 million less than had been assessed[S] in net tax and penalty (post-adjustment).[T]

[R] Early results from FY 2024 indicates that RAP assessments resulted in $2.1 million in collections.
[S] Collections lag assessed net tax and penalty because assessments may be paid after the end of the fiscal year due to payment plans and assessments issued late in the fiscal year, which would be paid during the following fiscal year.
[T] After a retailer's RAP assessment becomes final, TDOR expects the retailer to pay the final assessed amount. If the retailer does not do so, TDOR's Collections Services division may pursue collection activities, which can include working with the retailer to set up a payment plan to pay the full liability over time. If the retailer is unable to pay their liability in full, TDOR's Collection Services division may present the retailer with an "offer in compromise," through which TDOR accepts less than the final assessment amount to satisfy the liability.

Exhibit 7: RAP collections were lower than the amounts listed in initial assessments and proposed assessments



Notes: (1) Exhibit shows RAP from totals FY 2013 through FY 2023. (2) Initial assessments are the sales tax and penalty amount determined by TDOR to potentially be owed by a retailer quantified in the inquiry letter. Proposed assessments are the total amount of sales tax and penalties included in the NOPA letter. Total collections are the amount of sales tax, penalties, and interest remitted by retailers to TDOR after any adjustments.
Source: Comptroller analysis of data provided by TDOR.

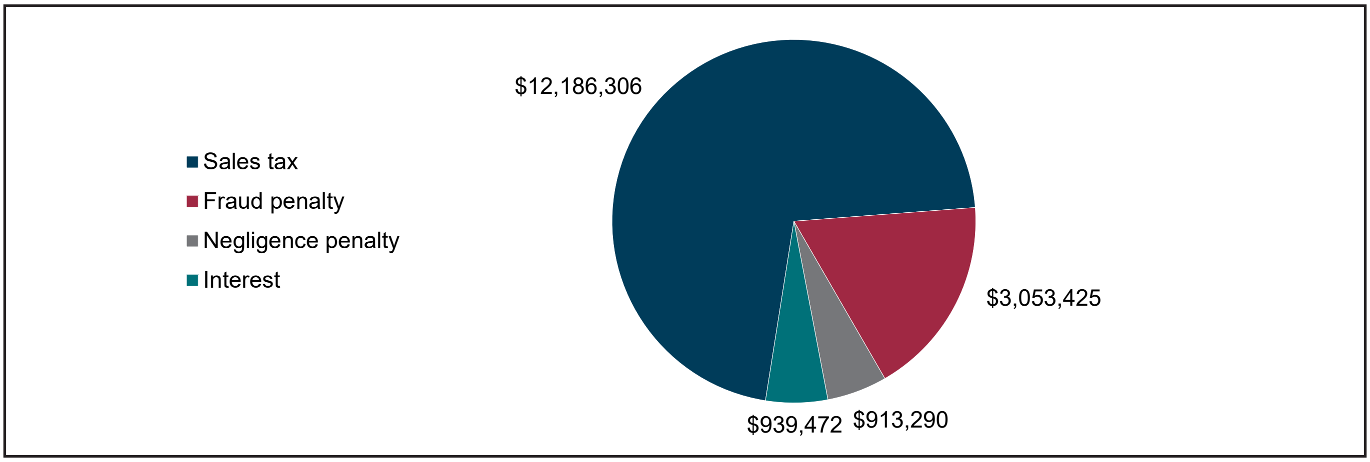
RAP assessments since FY 2013

Assessment categories

Since FY 2013, the RAP program has issued 14,810 assessments that total over $57.8 million in initial (pre-adjustment) assessments, including assessed tax and penalties. However, since FY 2015, the number of assessments and the total assessments and penalty total amounts have dropped and levelled off.

Overall, TDOR has issued $39.7 million in proposed assessments from FY 2013 through FY 2023. RAP's assessments can include four categories: sales tax, negligence penalties, fraud penalties, and interest. Sales tax is the amount of sales tax collected by a retailer but not remitted to the state, as assessed by TDOR. Negligence and fraud penalties are assessed by TDOR to discourage future failure to remit collected sales tax. Sales tax makes up the majority of total proposed assessments ($12.2 million since FY 2018), followed by fraud penalties and negligence penalties ($4.0 million combined since FY 2018).[U] Additionally, interest is charged on assessments over time ($939,000 since FY 2018).

Exhibit 8: More than 70 percent of proposed assessments come from unremitted sales tax



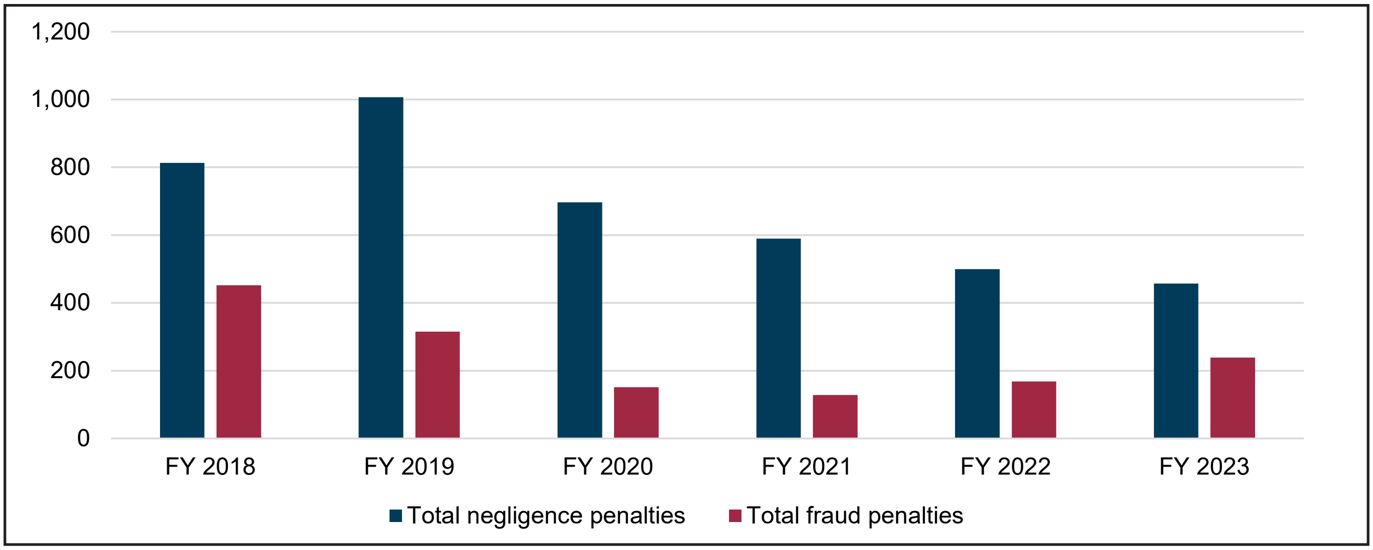
Note: Total proposed assessments included in NOPA letters issued from FY 2018-FY 2023. Data regarding NOPA letters are only available for FY 2018-FY 2023.
Source: Comptroller analysis of data provided by TDOR.

[U] Data showing the division of assessments (including interest) are only available beginning in FY 2018.

Negligence penalties are more common, but fraud penalties account for a higher amount of assessments

The *number* of negligence penalties was three times that for fraud penalties from FY 2018 through FY 2023, as shown in Exhibit 9.

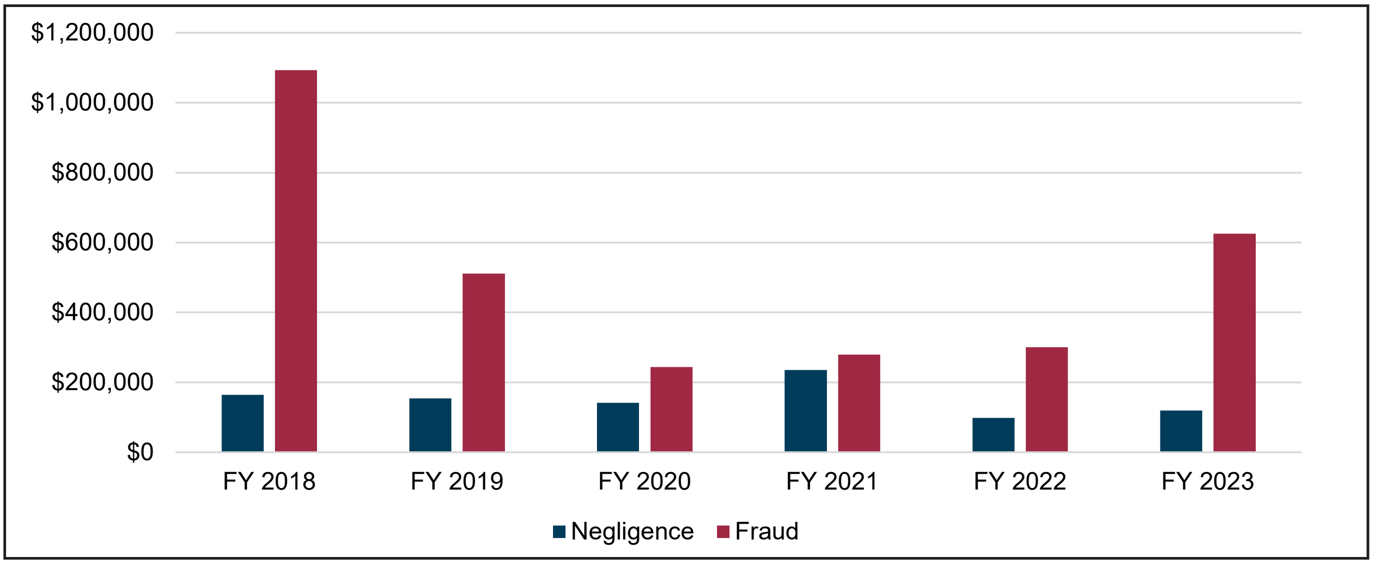
Exhibit 9: Negligence penalties are assessed more often than fraud penalties



Note: NOPA data regarding penalties are only available for FY 2018-FY 2023.
Source: Comptroller analysis of data provided by TDOR.

Although there were fewer fraud penalties than negligence penalties, fraud penalties generated more revenue. This is not surprising since fraud penalties are 10 times higher than those for negligence: fraud penalties are assessed at 100 percent of the amount of unremitted sales tax versus 10 percent for negligence penalties.

Exhibit 10: Fraud penalties generate more RAP revenue than negligence penalties

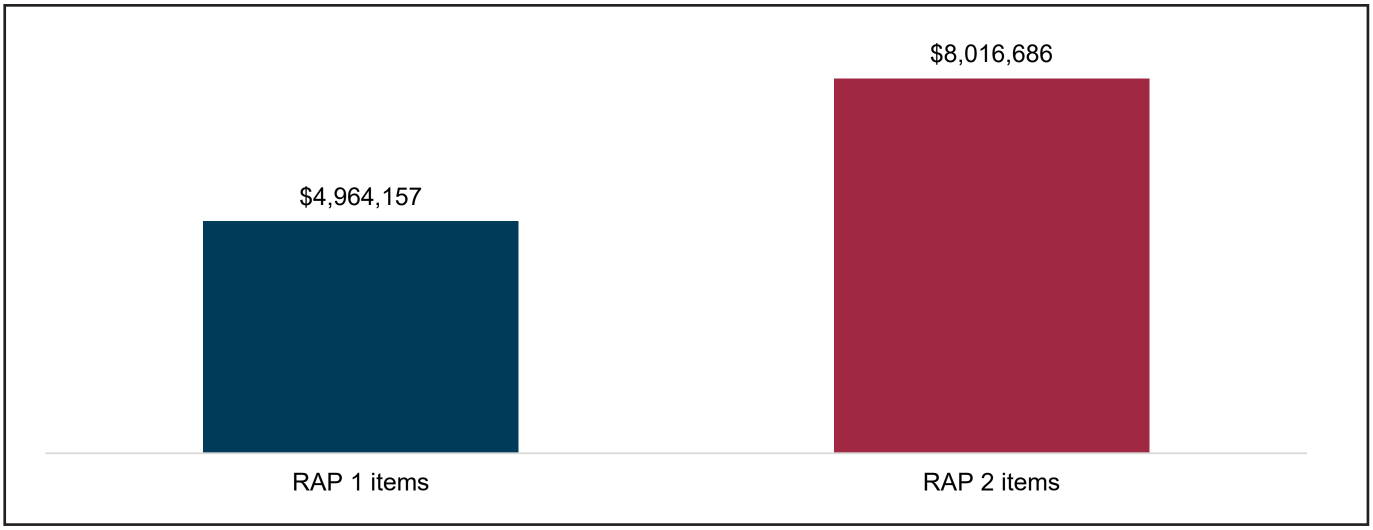


Note: Exhibit shows negligence and fraud penalties as of the NOPA letter.
Source: Comptroller analysis of data provided by TDOR.

RAP 1 items vs. RAP 2 items

RAP 1 items (beer and tobacco) have accounted for more remitted sales tax to the state than RAP 2 items (such as nonalcoholic beverages, candy, and snacks) due to beer and tobacco being a part of RAP since its 2012 inception.[V] However, since the 2015 product additions to RAP, RAP 2 items have accounted for $3.1 million more than RAP 1 items.[W] This could be due to either higher rates of unremitted sales tax on RAP 2 items or due to RAP 2 items being more numerous and more commonly sold than RAP 1 items.

Exhibit 11: RAP 2 items (water, candy, soft drinks, chips, etc.) generate more revenue than RAP 1 items (beer and tobacco)



Notes: (1) Totals based on FY when retailer's purchases and sales occur. (2) Data includes FY 2017-FY 2023 because this is when RAP data began to include the split between RAP 1 and RAP 2 items.
Source: Comptroller analysis of data provided by TDOR.

Division of assessments between state and local governments

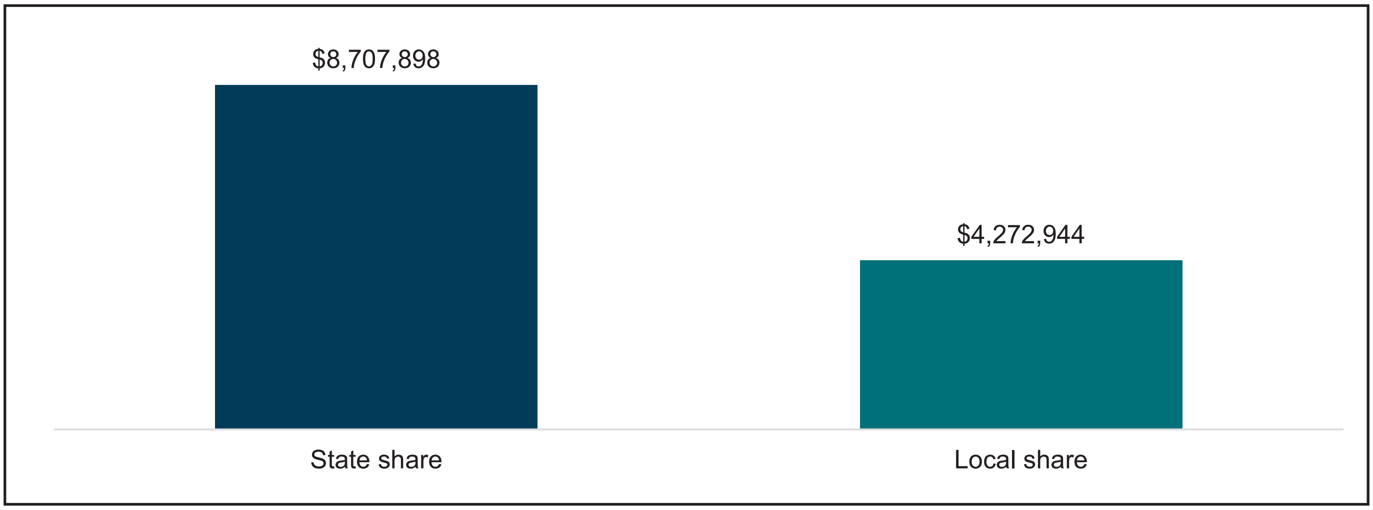
Unremitted sales tax affects local governments as well as the state government. As such, RAP collections affect both state and local governments. The amount remitted to local governments from the state depends on the local sales tax rate where the sale occurred. Thus, not all collections that come from RAP impact state revenues.

Some of the unremitted sales taxes collected by RAP may be allocated by TDOR[X] to either the state or local governments depending on the location of the assessment and additional relevant sales taxes in the area. Under six of the seven years with available data (FY 2017-FY 2023), RAP has resulted in more additional state revenues than local revenues.[Y] Generally RAP results in roughly double the amount of state revenues compared to local revenues because the sales tax rate to state government is 7 percent and the maximum allowable local sales tax add-on is 2.75 percent.[3]

Overall, since FY 2017, 67 percent of RAP revenues have been distributed to the state government compared with 33 percent to local governments. In total, roughly $8.7 million during that period has been for the state and roughly $4.3 million has been for the local governments.

[V] RAP 2 items can also include non-RAP items in this data. Wholesalers are permitted to send more data than required to TDOR which can include non-RAP items. This data can then be used to compare additional items outside of the required RAP items.
[W] Totals based on the fiscal year when retailer's purchases and sales occur rather than the fiscal year when the assessment was issued.
[X] Local sales taxes are remitted to the TDOR in the same manner as the state sales taxes.
[Y] Amounts measured by audit period. Audit periods are based on the fiscal year when retailer's purchases and sales occur, rather than the fiscal year when the assessment was investigated and issued.

Exhibit 12: Since FY 2017, roughly two-thirds of the unremitted sales tax owed by retailers has gone to the state; the remaining one-third has gone to local governments

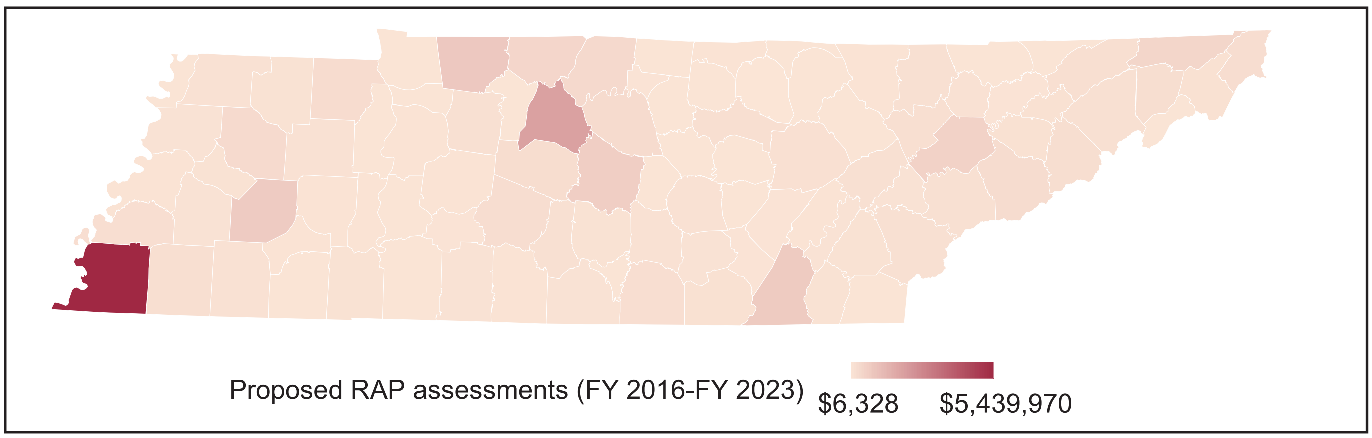


Notes: (1) Totals based on FY when retailer's purchases and sales occur. (2) Data includes FY 2017-FY 2023 because this is when RAP data began to include the split between RAP 1 and RAP 2 items.
Source: Comptroller analysis of data provided by TDOR.

Location of noncompliance

From FY 2016 through FY 2023, retailers in every county in Tennessee received NOPAs. Overall, counties with larger populations had more assessed to retailers in proposed assessments. Shelby and Davidson counties were the only two counties with combined total proposed assessments above $2 million. Five counties (Shelby, Davidson, Hamilton, Montgomery, and Knox) had retailers assessed more than $1 million and 53 counties had retailers assessed more than $100,000. The remaining 42 counties' retailers were assessed less than $100,000.

Exhibit 13: Proposed RAP assessments were highest in Tennessee's most populous counties

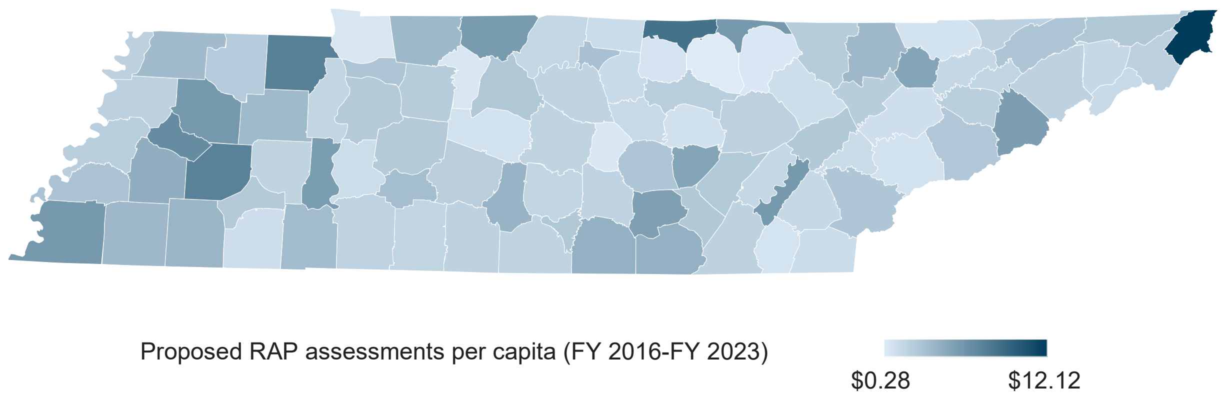


Note: Totals based on FY when retailer's purchases and sales occur.
Source: Comptroller analysis of data provided by TDOR.

When these totals are adjusted for population, highly populated counties become less of an outlier. However, some of these counties still remain among the counties with the most assessed retailers.[Z]

[Z] Shelby County was among the top 10 counties with the highest amounts assessed when looking at the state by both overall amounts and per capita, the only county to be on both lists.

Exhibit 14: Proposed RAP assessments were more evenly distributed across the state when adjusted for population



Note: Totals based on FY when retailer's purchases and sales occur.
Source: Comptroller analysis of data provided by TDOR.

The counties with the highest value of assessments per capita[AA] were Johnson, Clay, Henry, Madison, and Crockett counties. The counties with the lowest value of assessments per capita were Overton, Fentress, and Cannon counties. Based on this analysis, while the most populated counties result in the highest amounts assessed, retailers in Tennessee's largest counties are not more likely to under-remit sales tax than retailers in smaller counties.

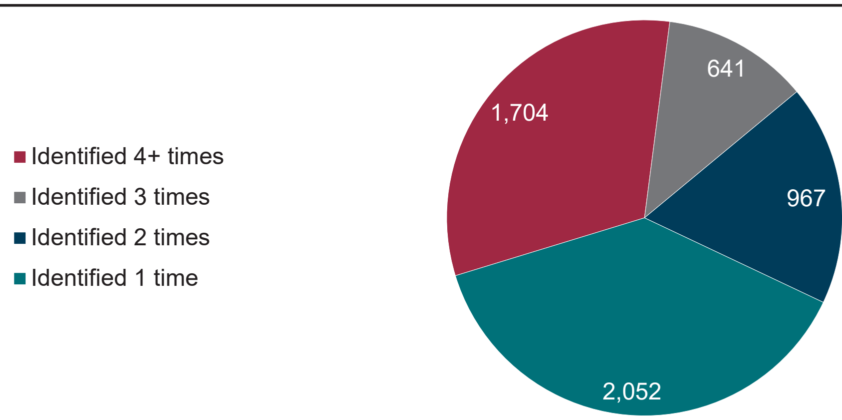
TDOR interaction with retailers and wholesalers

Total retailers contacted due to RAP

A total of 5,364 different retailers across Tennessee from FY 2013 through FY 2023 have been identified by RAP as potentially noncompliant. Some were found to be compliant through the RAP process and their RAP case was dismissed. Others either had the amount they owed reduced or had to pay in full the amount owed. Of the 33,885 retail establishments that wholesalers of RAP products reported working with in Tennessee, approximately 1.7 percent (582) had contact with TDOR due to RAP in FY 2023.

Of the 5,364 retailers identified through RAP as potentially or actually noncompliant, 38 percent (2,052) were identified only once by TDOR, and 30 percent (1,608) were identified two or three times. Thirty-two percent (1,704) were identified four or more times.

Exhibit 15: Retailers identified as potentially noncompliant one or more times by RAP from FY 2013 through FY 2023



Source: Comptroller analysis of data provided by TDOR.

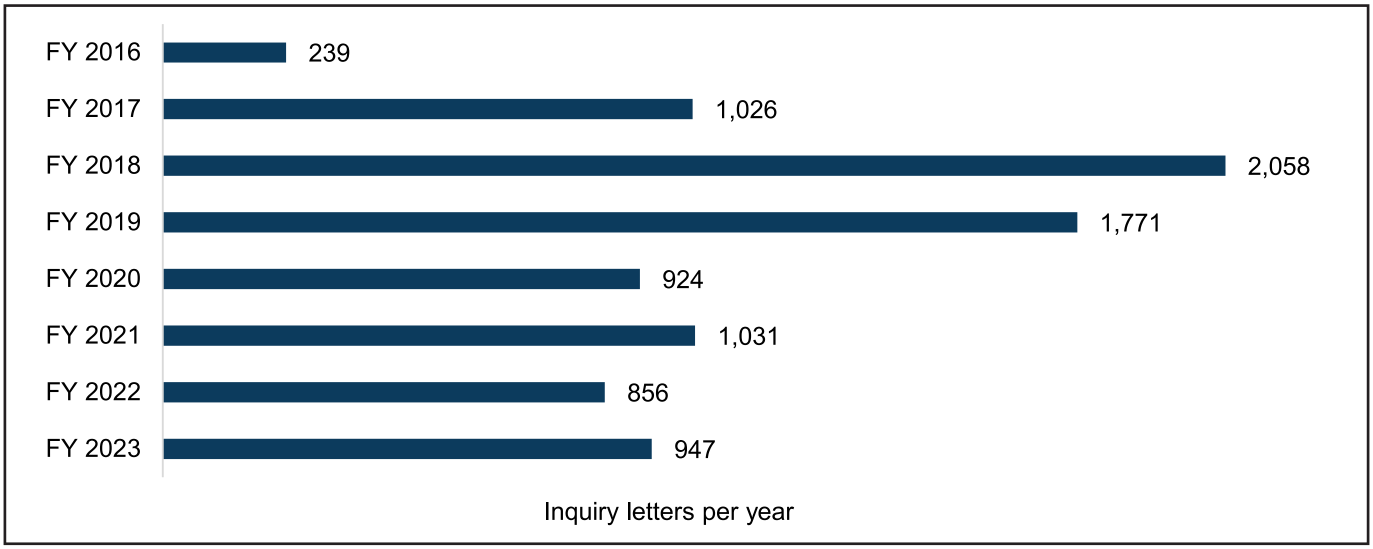
[AA] Per capita calculations measure the amount of RAP assessment dollars assessed to retailers in the county per each individual resident of the county.

In FY 2023, 564 unique retailers paid RAP assessments to TDOR.

Inquiry letters

Public Chapter 907, effective April 19, 2016, required TDOR, prior to issuing a NOPA, to provide retailers with an inquiry letter providing the information that led TDOR to its conclusion and provide retailers an opportunity to explain inconsistencies between purchases and reported sales. Since that time, TDOR has issued 8,852 inquiry letters. The number of inquiry letters peaked in FY 2018 and have dropped from a high of 2,058 to 947 in FY 2023.

Exhibit 16: The number of inquiry letters rose in the early years of RAP before falling to a lower level and then generally holding steady



Source: Comptroller analysis of data provided by TDOR.

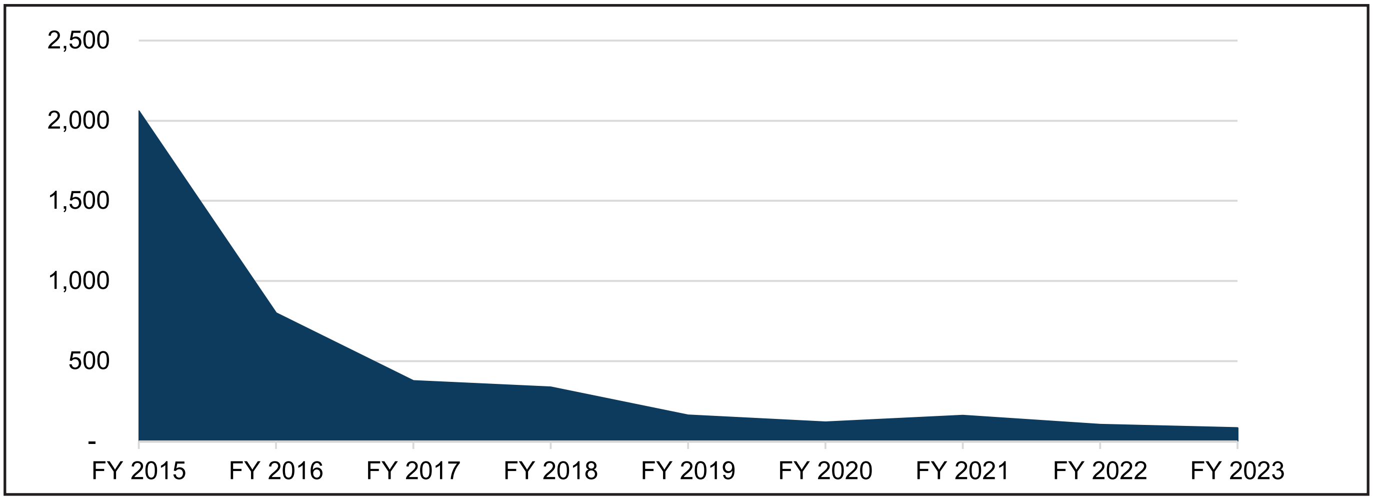
Adjustments

Sometimes during TDOR's audits of retailers identified by TR3, TDOR staff determines that TR3's initial assessment may have been inaccurate due to factors such as missing documentation, buydowns, and record errors. After retailers or wholesalers present TDOR with the relevant information, TDOR auditors review the information and determine if it addresses the discrepancies indicated in the initial assessments. In these cases, the initial amount included in the initial assessment to retailers is adjusted or removed.[AB]

The number of assessment and penalty adjustments have decreased significantly from over 2,000 in FY 2015 to 83 in FY 2023. While the reduction totals dropped significantly from $4.7 million in FY 2015 to $411,179 in FY 2023, the average proposed assessment amounts increased slightly.

[AB] Proposed assessments can also be adjusted; however, this is less frequent.

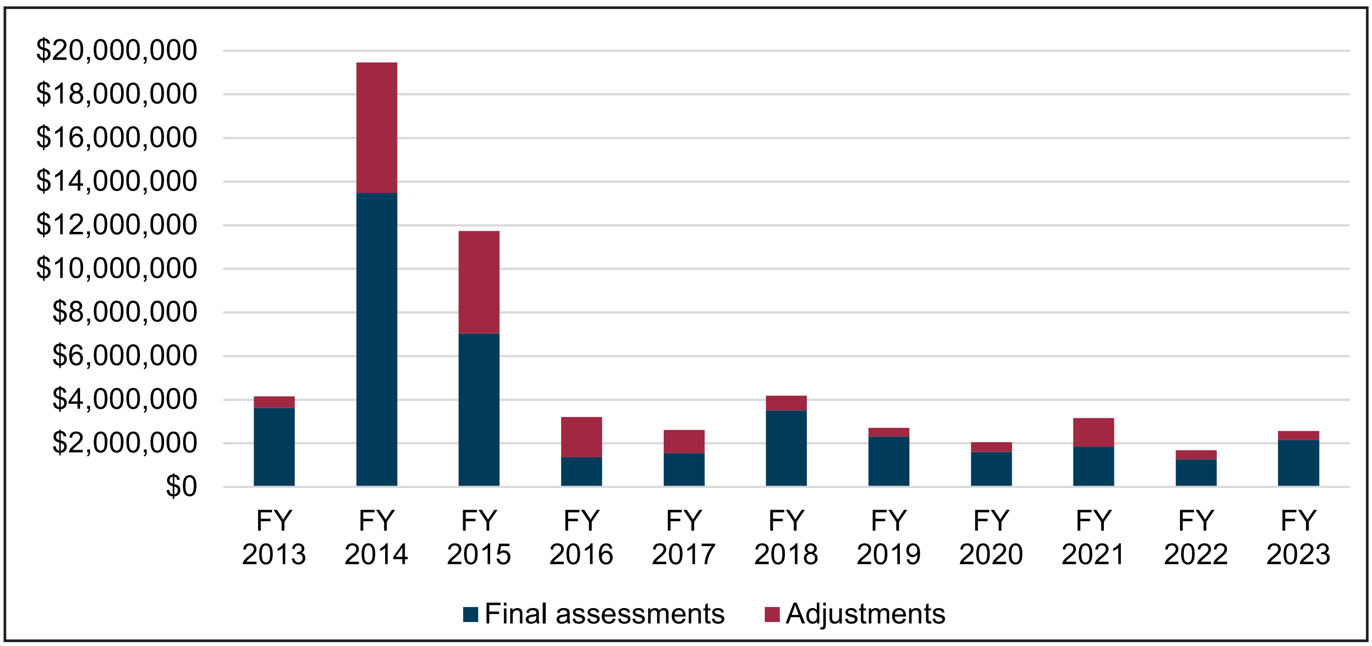
Exhibit 17: The number of adjustments has declined over time, indicating RAP is more precisely identifying noncompliant retailers



Source: Comptroller analysis of data provided by TDOR.

From FY 2013-2023, adjustments ranged in values from between $400,000 to $6 million each fiscal year.

Exhibit 18: The dollar value of adjustments has generally declined over time, indicating RAP is more precisely assessing noncompliant retailers



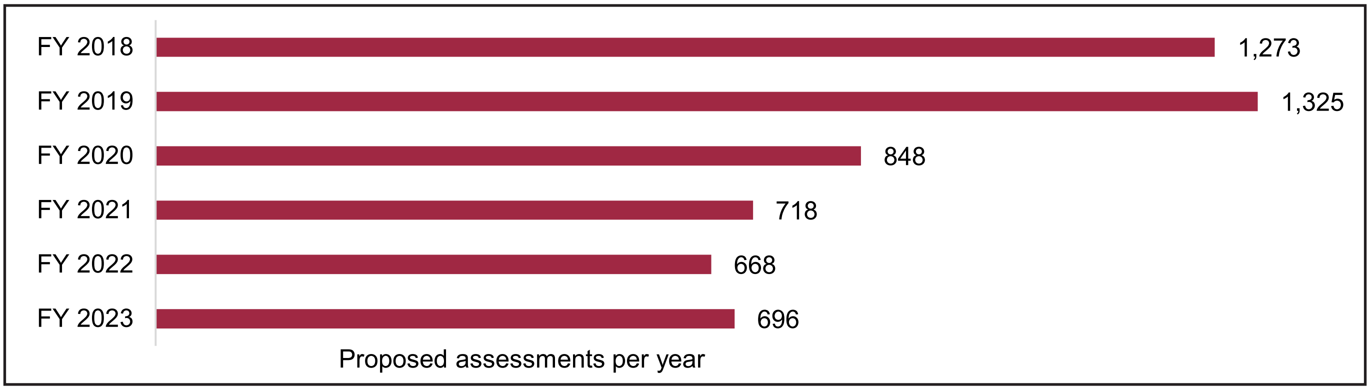
Note: When combined, net tax and penalty and adjustments are the total amount initially assessed by TDOR.
Source: Comptroller analysis of data provided by TDOR.

The amount adjusted from initial assessments is generally less than half of the amount initially assessed by TDOR but is still a sizeable amount. Adjustments generally declined following the implementation of the TR3 system used by TDOR. Adjustments also declined in part due to the requirement for tobacco product manufacturers to report on buydown information, included in the legislative changes made to RAP in 2015. This increased precision reduces the frequency of inaccuracies and unnecessary contact with retailers.

Notice of Proposed Assessment (NOPAs)

TDOR began using NOPAs for RAP in 2018 following a 2016 state law requiring their use. The number of NOPAs for RAP issued by TDOR has generally declined over time, falling from 1,273 for FY 2018 to 696 for FY 2023.

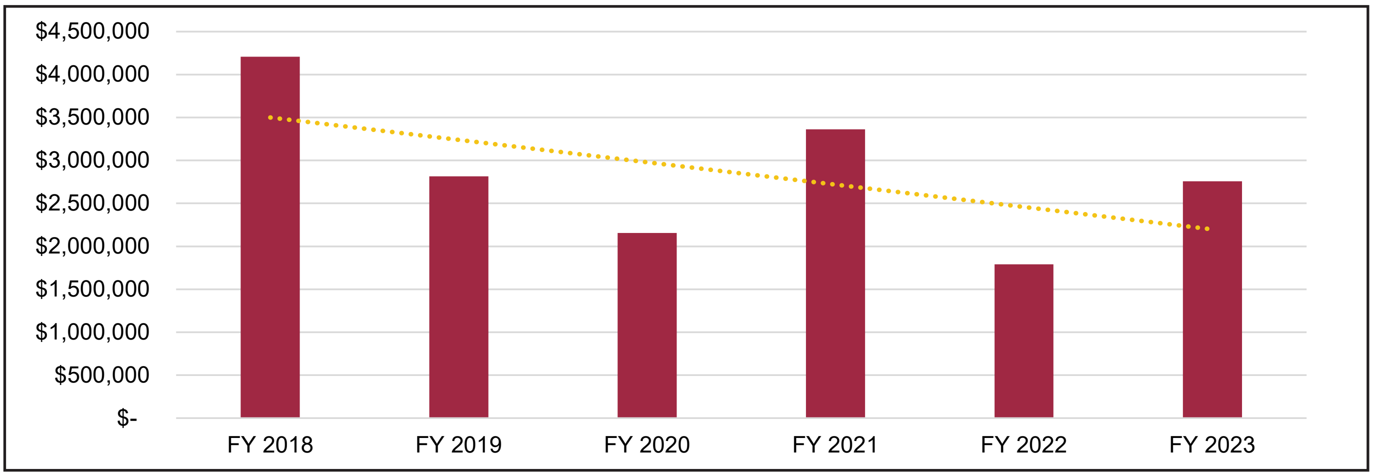
Exhibit 19: The number of NOPAs issued by TDOR to retailers has generally declined over time



Source: Comptroller analysis of data provided by TDOR.

The total dollar amount for NOPAs (i.e., the sales tax, interest, and any applicable penalties owed by retailers identified by RAP) also generally declined over the same time period, as shown in Exhibit 20.

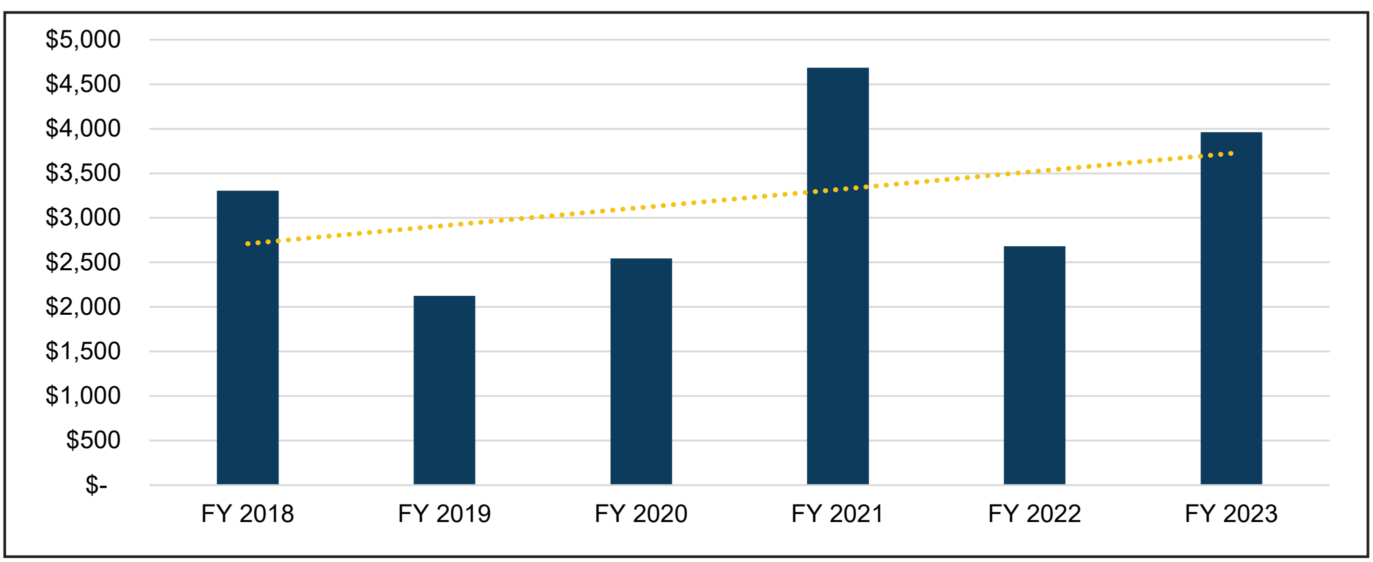
Exhibit 20: The total dollar amount of NOPAs has generally declined over time



Source: Comptroller analysis of data provided by TDOR.

The average NOPA amount, however, increased over this time period, as shown in Exhibit 21. The average NOPA amount rose from $3,306 in FY 2018 to $3,963 in FY 2023, an increase of almost 20 percent.

Exhibit 21: The average dollar amount per NOPA has increased over time

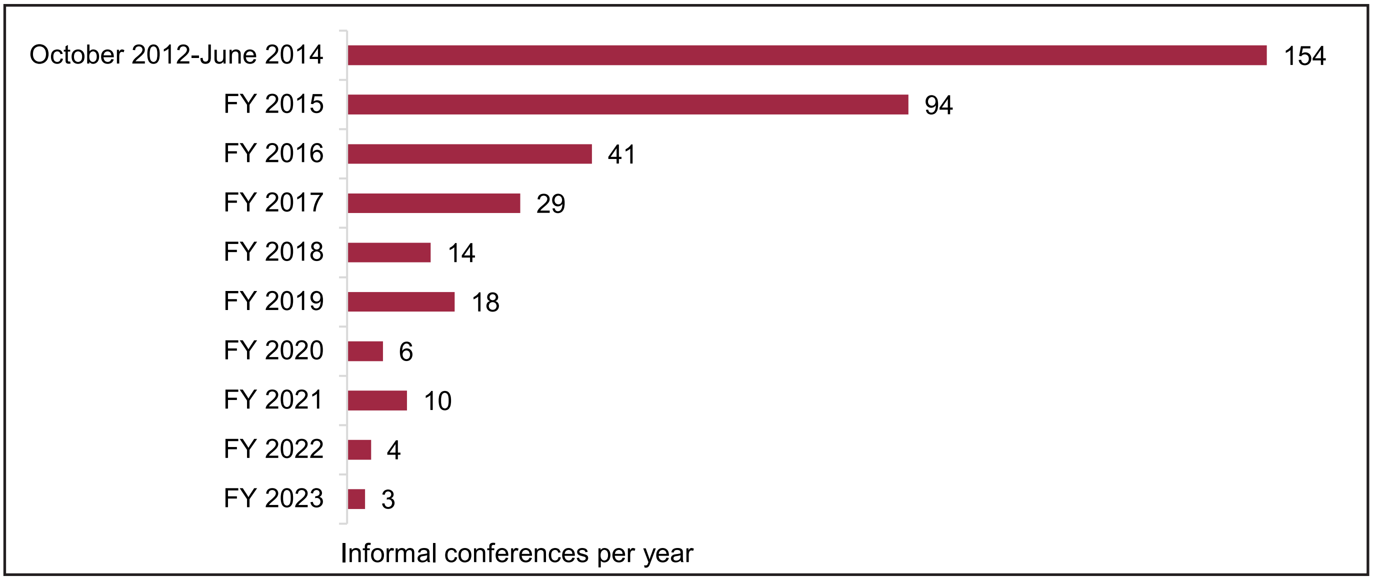


Source: Comptroller analysis of data provided by TDOR.

Retailer appeals

When a retailer disagrees with the initial or proposed RAP assessment, they can contact RAP to explain their disagreement and provide additional information. Retailers may also request an informal conference to discuss the proposed assessment within 30 days of receiving a NOPA, but few retailers make this request. Since RAP's inception, the department has scheduled 373 conferences, 248 (66 percent) of which were scheduled between October 2012 and the end of FY 2015. The number of conferences decreased significantly between FY 2016 and FY 2023, with only three scheduled in FY 2023.

Exhibit 22: Retailer appeals (known as informal conferences) of RAP assessments have fallen to single digits in recent years



Note: Amounts for October 2012 through June 30, 2014, were calculated based on other reported information.
Source: Comptroller analysis of data provided by TDOR.

Wholesaler penalties

Wholesalers can also be contacted and receive penalties under RAP, although the penalty structure differs substantially from retailer penalties. Wholesalers are penalized for failing to submit relevant records of sales to retailers or submitting incorrect records. However, these penalties are generally waived by TDOR upon receipt of the missing or inaccurate records. In the early years of RAP (FY 2014-FY 2015), 26 wholesalers were penalized a total of 34 times.[AC] Twenty-three of these 26 wholesalers had their penalty removed upon submission of relevant records. One of these had one instance of penalty removed and another not removed. The four wholesalers whose penalties were not removed accrued $116,000 in total penalties.

After RAP 2 items were introduced, TDOR paused the use of wholesaler penalties starting in calendar year 2016 but began reimplementing them in 2022. According to TDOR, this was because TDOR needed to work with wholesalers because of issues surrounding both the addition of RAP 2 information and COVID-19. As of the end of calendar year 2023, 224 wholesalers were penalized during the period for a total of $1,543,500. Of the 224 wholesalers, 100 had their penalty (or penalties) fully removed upon submission of relevant records, 43 had some – but not all – of their penalty (or penalties) removed, and 81 had none of their penalty (or penalties) removed. As of the end of calendar year 2023, 124 wholesalers still had outstanding penalties totaling $871,000.

[AC] Penalties were not assessed to wholesalers in the first year of RAP (FY 2013).

How RAP changes retailer sales tax compliance

It is likely that some retailers in Tennessee have adjusted their sales tax remittance behavior due to RAP, as was the intention when the program was created. Money voluntarily remitted to the state as a result of behavior changes would not appear in the state's accounting system as attributable to RAP, but an estimate should be considered when reviewing the overall impact of the program. In absence of exact dollar amounts, statistical projections can be performed to help policymakers understand the full picture of the financial impact of the program beyond the penalties collected from noncompliant retailers.

TDOR statisticians performed an econometric projection[AD] to estimate modified tax compliance behavior resulting from RAP. TDOR has performed this analysis three times since the inception of the program, using the same basic statistical method each time: the Autoregressive Integrated Moving Average (ARIMA) forecasting model. When asked about other methods of econometric projection that were considered for this purpose, the TDOR statistical team explained that the ARIMA method allowed for the most statistically defensible approach to how economic behavior was modified as result of RAP. The University of Tennessee's Boyd Center for Business and Economic Research (CBER) uses ARIMA forecasting as part of the state government's overall sales tax revenue estimating.[4] Appendix B describes this statistical model of forecasting in more detail.

The earliest version of this analysis, performed in 2013, created an estimate of taxpayer behavioral modification (enhanced tax remittance) of affected Tennessee retailers, at a value of $16,146,100 per year. Estimates from two subsequent TDOR analyses for FY 2015 and FY 2023 are shown as bolded numbers in Exhibit 23.

Comptroller staff utilized a straight-line basis projection to make behavioral modification estimates for fiscal years not analyzed by TDOR; those estimates are displayed as nonbolded numbers in Exhibit 23.

Exhibit 23: An estimated $300 million in sales tax revenues have been voluntarily remitted by retailers over the past 11 years to avoid being identified as noncompliant by RAP

Fiscal year	Statistically estimated increased sales tax collection
2012-13	**$ 16,146,100.86**
2013-14	$ 16,363,031.41
2014-15	**$ 16,579,959.96**
2015-16	$ 19,849,625.27
2016-17	$ 23,119,290.57
2017-18	$ 26,388,955.88
2018-19	$ 29,658,621.18
2019-20	$ 32,928,286.49
2020-21	$ 36,197,951.79
2021-22	$ 39,467,617.10
2022-23	**$ 42,737,282.40**
RAP program total	**$ 299,436,722.91**

Notes: (1) The ARIMA estimates made by TDOR for FY 2013, FY 2015, and FY 2023 are shown in bolded numbers. The Comptroller's Office performed a straight-line basis projection for the years not analyzed by TDOR. (2) By continuing the straight-line basis projection through FY 2024, the monetary value of the behavioral modification caused by RAP to increase state revenue collection would be an estimated $46,006,947. As not all FY 2024 RAP data was available at this time, this cost was not included in this exhibit.
Source: Tennessee Department of Revenue and Tennessee Comptroller of the Treasury analysis.

[AD] An econometric projection is the application of methods of statistics to economic data, such as tax revenue collections.

Administrative costs of RAP

TDOR incurs several administrative costs related to the administration of RAP. Typically, these costs include salary, benefits, travel, office supplies, printing, and computer costs that are directly related to administering the program or that can be indirectly attributed to the program. The department provided a listing of employees who have worked solely on or in part on RAP from its inception in 2012 through 2023.[AE] TDOR accounting records obtained from Edison, the state's accounting system, show the salary and benefit costs for these employees during this time, but Comptroller staff could not determine the costs for non-salary expenses.

Salary-related costs

According to TDOR accounting records, costs related to salaries and benefits have risen since the 2015-2016 expansion of RAP. The rise does not appear to be related to an increase in the number of staff assigned to RAP. Seven employees were assigned to the program in 2014 and 2023. Three of the seven worked exclusively on RAP reviews, while the other four split their time between RAP and non-RAP assignments.

The main driver of increased costs appears to be rising salaries of senior staff assigned to the program. The trend of rising salaries over this time period applied to all staff members assigned to the RAP group. Comptroller staff did not consider this to be an issue, however, as it is normal for state workers to receive pay increases.

Non-salary-related costs

TDOR accounting records could not be used to determine what non-salary and benefits-related costs were related to the administration of RAP, and TDOR management was unable to provide this information. Though exact amounts for non-salary administrative costs for the RAP program were not available, estimates were made using the accounting records for TDOR's Audit Division by Comptroller staff. For example, during FY 2023, TDOR's Audit Division which administers RAP had $32,863,072 in total expenses per Edison, $29,712,349 (90.41 percent) of which were for salaries and benefits. The total includes all Audit Division expenses, including costs related to travel, computing, mobile phones, advertising, printing, leases, and any other costs associated with running the Audit Division. Thus, by subtracting the salary and benefits costs from the total, it can be determined that the non-salary and benefits costs were 9.59 percent of the total expenses for the Audit Division.

Nothing was found to indicate that RAP's costs would have a lower proportion of salaries and benefits than the rest of the Audit Division, or that non-salary and benefits related costs were significantly higher in other years. Therefore, since the percentage of non-salary and benefits related costs is approximately 9.59 percent, it is not believed that the inclusion of non-personnel related administrative costs in the totals above would have any material impact on the conclusions.

Exhibit 24 shows RAP personnel costs compared to receipts from RAP. In 2023, personnel costs of RAP were 20.93 percent of the amount of revenue that the program generated in assessments. For the 2013-2023 period, the total known personnel cost for RAP is 10.65 percent of the receipts attributable to RAP.

[AE] Edison did not include the employee's ID within the data gathered for payroll costs prior to 2014, so the information is limited to fiscal years 2014 through 2023.

Exhibit 24: Personnel costs to administer RAP compared with revenues from RAP

Fiscal year	Receipts from RAP	RAP personnel costs	Cost of RAP as percent of RAP receipts
2013	$ 788,491	Unknown	Unknown
2014	11,648,393	$ 380,789	3.27%
2015	7,960,578	350,504	4.40%
2016	2,710,671	338,799	12.50%
2017	1,850,601	387,780	20.95%
2018	1,941,344	387,191	19.94%
2019	2,264,234	413,853	18.28%
2020	1,931,561	370,342	19.17%
2021	1,762,730	407,594	23.12%
2022	1,813,472	456,306	25.16%
2023	1,925,230	402,930	20.93%
Total	**$36,597,304**	**$ 3,896,089**	**10.65%**

Notes: (1) Administrative costs for FY 2013 were not included in this comparative table as the costs data for this year were unreliable. (2) Based on interim data from the state's accounting system (Edison), Comptroller staff determined that the FY 2024 RAP personnel costs were $485,294. As not all FY 2024 RAP data was available at this time, this cost was not included in this exhibit.
Source: Edison; Tennessee Department of Revenue; Tennessee Comptroller of the Treasury analysis.

The business perspective

To determine RAP's impact on Tennessee's business community, Comptroller staff interviewed the leaders of various associations representing wholesalers and retailers and learned that opinions about RAP are not uniform, with some associations supportive and others critical. To more fully understand these opinions, Comptroller staff conducted a survey of wholesalers and retailers.

> "If there is a reason to audit a company, [TDOR] should come audit the company rather than [apply] an algorithmic determination."
>
> - Head of an association representing wholesalers and retailers

Survey of Tennessee wholesalers and retailers

Comptroller staff surveyed wholesalers and retailers about RAP between May 22 and June 10, 2024. The survey was sent to 978 unique email addresses of wholesalers (253) and retailers (725).

Using its TR3 system, TDOR provided a comprehensive list of Tennessee RAP wholesalers and their email addresses for the survey. The list of retailers, however, was a broader sample of retailers compiled from contact lists provided by associations of businesses representing retailers. A press release was distributed by the Comptroller of the Treasury on March 27, 2024, notifying the public of this survey and requesting participation so as to generate maximum feedback.

The survey yielded 82 responses, of which 43 were wholesalers (17 percent response rate) and 39 were retailers (5.4 percent response rate). Due to this limited response rate, the results of the survey cannot be used to assess the sentiment and experiences of the retail and wholesale communities in Tennessee more broadly. However, selected results are provided in Appendix A.

Support for RAP

> “People who are doing the right thing should not be competing with people who are not doing the right thing.”
>
> - Head of an association representing wholesalers and retailers

Leaders of two associations, one primarily representing wholesalers and the other primarily representing retailers, communicated to the Comptroller's Office that, though not without its issues,[AF] RAP has worked to level the playing field among retailers of program-covered products. An association representing fuel and convenience stores explained that the competitive marketplace unfairly advantages those retailers who are not remitting all the sales tax paid by the customer and required by Tennessee tax law. If a retailer were to fail to remit the sales taxes paid by customers, those dollars could be diverted to lowering certain prices, increasing marketing, or improving the building and grounds of the business in an effort to gain market share for that retailer.

Criticisms of RAP

Leaders from two associations, one primarily representing wholesalers and the other primarily representing retailers, communicated that RAP signifies a distrustful relationship between the state (as a regulator) and the business community. They told the Comptroller's Office that they prefer the process that existed prior to RAP's implementation in 2012. Before then, TDOR audited retailers if there was concern about their sales tax remittance and did so without the broad net cast on all sellers of RAP products through the monthly computerized double-checks by the state on a retailer's sales information. If the audit results confirmed that the retailer was not remitting the correct amount of sales tax, then corrective action followed.

> “We (the wholesalers) are doing the Department of Revenue's job. The wholesalers aren't getting reimbursed to produce and report this data and they already pay a gross receipts tax at the bottler level.”
>
> - Head of an association representing wholesalers

Conclusions

RAP collected $36.6 million in unremitted sales taxes, penalties, and interest from FY 2013 through FY 2023

More than half of the $36.6 million was collected in the program's early years. For example, in FY 2014, the program collected $11.6 million. The amount collected annually then declined, and in more recent years has settled at around $1.9 million each year.

The decline in annual RAP collections following the program's early years is likely due to behavior changes by retailers in response to the program. It is probable that more retailers began collecting and remitting the correct amount of sales tax to the state to avoid being identified by RAP, thus lowering the revenues collected through the program.[AG] TDOR estimates the amount of sales tax revenues voluntarily remitted by retailers to avoid being identified by RAP was $42.7 million in FY 2023.[AH] An estimated $300 million was voluntarily remitted over the past 11 years (from FY 2013 through FY 2023) as RAP is a disincentive to under-remitting sales tax dollars. Therefore, if RAP were scaled back or eliminated there would likely be an increase in tax avoidance among retailers.

[AF] Comptroller staff heard from business associations that during the 2012 creation of the program as well as the 2015 program expansion there existed confusion between the regulated business community and the TDOR.
[AG] Additionally, the decline in RAP collections may be due in part to a shift toward the consumption of vape products, which are not included in RAP, rather than traditional tobacco products.
[AH] On three occasions (2013, 2015, and 2023), TDOR has produced a range of statistical estimates of the amount of sales taxes voluntarily remitted by retailers to avoid being identified as noncompliant by RAP. Comptroller staff reviewed the estimates and included the most conservative of the values forecasted by TDOR on page 23.

More than 70 percent of proposed RAP assessments come from unremitted sales taxes, with the remaining percentage coming from penalties and interest. Generally speaking, 67 percent of all dollars collected by RAP go to state government and 33 percent to local governments.

RAP proposed assessments have been highest in Tennessee's most populous counties since FY 2016. Such counties are likely to have more retailers, wholesalers, and economic activity than counties with smaller populations. From FY 2016 through FY 2023, five counties (Shelby, Davidson, Hamilton, Montgomery, and Knox) had RAP proposed assessments of $1 million or more, with Shelby and Davidson accounting for more than $2 million each. Fifty-three counties had retailers assessed more than $100,000. The remaining 42 counties' retailers were assessed less than $100,000.

While RAP assessment amounts are highest in Tennessee's most populous counties, retailers in these counties are not necessarily more likely to be assessed than retailers in less populated counties. When adjusted for population, RAP assessments are more evenly distributed across the state. On a per capita basis, the counties with the highest dollar amounts for RAP assessments were Johnson, Clay, Henry, Madison, and Crockett counties. Only Shelby County appeared in the top 10 counties on a per capita basis as well as by total population.

RAP has collected more money than it costs to administer the program.

The program collected $36.6 million in unremitted sales taxes, penalties, and interest from FY 2013 through FY 2023.[AI] By contrast, the costs associated with administering the program from FY 2014 through FY 2023 were[AJ] under $4 million.[AK]

Exhibit 25: Personnel costs to administer RAP compared with revenues from RAP

Fiscal year	Receipts from RAP	RAP personnel costs	Cost of RAP as percent of RAP receipts
2013	$ 788,491	Unknown	Unknown
2014	11,648,393	$ 380,789	3.27%
2015	7,960,578	350,504	4.40%
2016	2,710,671	338,799	12.50%
2017	1,850,601	387,780	20.95%
2018	1,941,344	387,191	19.94%
2019	2,264,234	413,853	18.28%
2020	1,931,561	370,342	19.17%
2021	1,762,730	407,594	23.12%
2022	1,813,472	456,306	25.16%
2023	1,925,230	402,930	20.93%
Total	**$36,597,304**	**$ 3,896,089**	**10.65%**

Notes: (1) Administrative costs for FY 2013 were not included in this comparative table as the cost data for this year were unreliable. (2) Based on interim data from the state's accounting system (Edison), Comptroller staff determined that the FY 2024 RAP personnel costs were $485,294. As not all FY 2024 RAP data was available at this time, this cost was not included in this exhibit.
Source: Edison; Tennessee Department of Revenue; Tennessee Comptroller of the Treasury analysis.

[AI] Statistical estimates of revenue collected due to behavioral modification were excluded from this comparison to display only revenues and costs that were recorded in the state accounting system (Edison) as attributable to RAP.
[AJ] Personnel costs for RAP were unreliable for FY 2013 and are not included in this calculation. Personnel costs were less than $400,000 annually from FY 2014 to FY 2018.
[AK] RAP administrative costs were calculated by the Comptroller's Office based on salary and benefits for TDOR employees who worked solely or in part on RAP from FY2014 through 2023. Other administrative costs, such as travel, office supplies, etc., were not included in this calculation because such costs could not be isolated for RAP. However, the vast majority (approximately 90 percent) of RAP's administrative costs come from salaries and benefits.

Nonalcoholic beverages (e.g., fruit juice, water), candy, soft drinks, and other food items account for more RAP collections than beer and tobacco.

In 2015, RAP was expanded from beer and tobacco (RAP 1 items) to include nonalcoholic beverages (e.g. fruit juice, water, etc.), candy, soft drinks, and other products (RAP 2 items).[AL] From FY 2017 through FY 2023, RAP 2 items accounted for $8.0 million in collections compared with $5.0 million from RAP 1 items.[AM] This difference could be due to higher volume (i.e., RAP 2 items are more numerous than RAP 1 items), higher levels of identified noncompliance with tax laws for RAP 2 items, or a combination of these reasons.

The General Assembly initially set a sunset date of 2019 for RAP 2 items. The sunset was extended in 2019 and again in 2022, when the General Assembly set the sunset date for 2025. Absent legislation, RAP 2 items will sunset on July 1, 2025 and no longer be subject to the program. It is possible that increased tax avoidance by some retailers on these items (i.e., nonalcoholic beverages, candy, soft drinks, and other food items) may result.

The precision of RAP in identifying potentially noncompliant retailers and calculating the amount owed in unremitted sales tax has increased over time.

Two measures of RAP's precision are (1) the *number* of adjustments to the amount owed by retailers identified as potentially noncompliant, and (2) the *dollar value* of those adjustments. In general, the lower the *number* of adjustments, the greater RAP's precision at identifying retailers that are noncompliant. And the lower the *dollar value* of adjustments, the greater RAP's precision at calculating the amount owed by those retailers found to be noncompliant.[AN]

Comptroller staff determined the number of adjustments decreased from over 2,000 in FY 2015 to 83 in FY 2023. One factor in this decline was TDOR's adoption of new software in 2017 that, among other things,[AO] allows for more accurate identification of noncompliant retailers. The software (TR3) compares and evaluates the amount of sales taxes collected by retailers relative to a conservative estimate of the amount of sales tax that should have been collected. Along with this conservative estimate, TDOR sets various thresholds to further refine the identification of retailers. These methods make those retailers identified by RAP highly likely to have not remitted a substantial amount of sales tax to the state, according to TDOR. In addition, some members of the business community interviewed by the Comptroller's Office stated that RAP's identification of noncompliant retailers has become more accurate over time.

The other measure of RAP's precision – the dollar value of adjustments – has also generally decreased over time, indicating greater precision in the program's calculation of the amount owed by noncompliant retailers. In FY 2015, the total dollar value of adjustments was $4.7 million. By FY 2023, the amount had fallen to $411,179.

[AL] Wholesaler sales reports may commingle RAP items and non-RAP items. TDOR uses these sales reports when generating RAP assessments. When these non-RAP items are identified in RAP assessments, they are categorized as RAP 2 items along with traditional RAP 2 items (candy, soft drinks, snacks, etc.).
[AM] From FY 2018 through FY 2023, RAP 2 items accounted for roughly $450,000 to $2.3 million each year, while RAP 1 items accounted for $300,000 to $1.2 million.
[AN] Evaluations of RAP's precision should also consider the reason for adjustments. Some adjustments are made because the full picture of a retailer's circumstances was not known by TDOR at the time of a RAP calculation. For example, a retailer that does not initially submit the necessary paperwork to have stolen or damaged goods excluded from the calculation of sales tax owed may be identified by RAP as potentially noncompliant. After receiving the necessary paperwork, TDOR may then make an adjustment, either dismissing the RAP case entirely or reducing the amount owed. In other cases, RAP may identify a retailer as potentially noncompliant because of problems with wholesaler data, such as double-counted sales, inaccurate prices, and other misreported sales figures from wholesalers. Adjustments may also be made because of tobacco buydowns, which are essentially discounts provided by tobacco product manufacturers to lower the retail sales price of tobacco products. Retailers that receive such discounts sell tobacco products below the standard retail price and, therefore, collect less in sales tax on each sale. If this is not taken into account by RAP, such retailers may be misidentified as potentially noncompliant. Legislative changes made to RAP in 2015 required wholesalers to submit buydown reports to TDOR, which contributed to the decline in adjustments seen in subsequent years.
[AO] RAP is a small portion of the entire system of filings that this tax system facilitates.

Greater precision means fewer compliant retailers are identified by RAP as potentially noncompliant. Such retailers are saved the time they would otherwise spend verifying their compliance with TDOR. Greater precision also means TDOR can focus more of its limited resources on retailers ultimately found to be noncompliant and to ensuring the calculation of sales taxes, interest, and applicable penalties owed by those retailers is correct.

Opportunities exist for TDOR to improve the transparency of RAP's operations.

Leaders of wholesaler and retailer associations interviewed by the Comptroller's Office cited a lack of publicly available information about RAP, and the Comptroller's Office found that publicly available information regarding the program's steps and procedures was lacking or unavailable, as of July 31, 2024. This is a source of frustration for some members of the business community and has resulted in misconceptions about the program's processes and impact.

As of June 2024, TDOR maintained a series of 26 distinct webpages about RAP. The webpages provide a brief explanation of the program's purpose, the roles of retailers and wholesalers, and frequently asked questions about the program. The content on these webpages is useful, but certain details are not included that could help retailers and wholesalers better understand how, and why, their data is being used in the program. TDOR maintains a document (2018 Retail Accountability Guide) that addresses many of the topics and questions which may be helpful for retailers and wholesalers, but this document is not available on the TDOR website. In addition, the use of 26 distinct webpages for presenting information about RAP may pose navigational and accessibility challenges for retailers and wholesalers.

Other information could also be added to the website, or existing information could be revised, to address areas of concern among wholesalers and retailers, such as:

- a clear step-by-step breakdown of the RAP process for both wholesalers and retailers (including what may be required of them if discrepancies are identified or data is missing, as well as a list of common reasons for data inaccuracies);
- an explanation of the purpose and the goals for each step of the process;
- an explanation of the reasoning behind calculations used in the program (i.e., assumptions, rationale, etc.); and
- high-level data on revenues collected, retailers impacted by RAP, and other program results.

Additional analysis of RAP data by TDOR might produce other program results that could be made public. For example, the number of unduplicated retailers that paid their RAP assessment by fiscal year was not readily available when requested by the COT in the course of this evaluation. In response to a COT request, TDOR provided a data file that COT staff then used to determine the number of unduplicated retailers (564 retailers) that paid their RAP assessment in FY 2023. TDOR could also conduct further analyses of the 5,364 different retailers identified by RAP as potentially noncompliant between FY 2013 and FY 2023.[AP] Some number of these retailers were found to be compliant through the RAP process and their RAP case was dismissed. Others either had the amount owed reduced or had to pay in full the amount owed. In addition to producing such data for public-facing purposes, TDOR might also use it to evaluate potential changes to RAP in order to improve the program and collect higher amounts of unremitted sales tax.

[AP] In FY 2023, 582 retailers were identified in TDOR data as potentially noncompliant with RAP requirements.

Opinions about RAP are not uniform among the business community, with some supportive and others critical

Opinions from the business community presented in this report were gathered through interviews and written correspondence with the leaders of various associations of wholesalers and retailers by Comptroller staff. Two business associations supportive of RAP indicated that the program has increased their members' confidence in a level playing field for all retailers of RAP products. Representatives of these associations noted RAP makes it less likely that some retailers will evade the tax laws and thereby gain an unfair competitive advantage.

Two business associations were critical of RAP, describing the program as overreaching, unfair, and overly burdensome. These associations disapproved of TDOR's use of computer-based assumptions and thresholds to identify potentially noncompliant retailers.

Policy option

TDOR could update and improve its public-facing information describing RAP's operations

As of June 2024, TDOR maintained a series of 26 distinct webpages about RAP. The webpages provide a brief explanation of the program's purpose, the roles of retailers and wholesalers, and frequently asked questions about the program. The content on these webpages is useful, but certain details are not included that could help retailers and wholesalers better understand how, and why, their data is being used in the program. TDOR maintains a document (2018 Retail Accountability Guide) that addresses many of the topics and questions which may be helpful for retailers and wholesalers, but this document is not available on the TDOR website. The document could be updated and posted on the TDOR website as an information resource for retailers and wholesalers. In doing so, the number of distinct RAP webpages could be reduced for easier navigation.

Other information could also be added to the website, or existing information could be revised, to address areas of concern among wholesalers and retailers, such as:

- a clear step-by-step breakdown of the RAP process for both wholesalers and retailers (including what may be required of them if discrepancies are identified or data is missing, as well as a list of common reasons for data inaccuracies);
- an explanation of the purpose and the goals for each step of the process;
- an explanation of the reasoning behind calculations used in the program (i.e., assumptions, rationale, etc.); and
- high-level data on revenues collected, retailers impacted by RAP, and other program results.

TDOR could conduct further analysis of data points such as the number of unduplicated retailers that pay their RAP assessment each fiscal year and the 5,364 different retailers identified by RAP as potentially noncompliant between FY 2013 and FY 2023. In addition to using these and other data points for public-facing purposes, they might also be used to evaluate potential changes to RAP in order to improve the program and collect higher amounts of unremitted sales tax.

Endnotes

[1] Texas Legislature Online, Texas House Bill 11, effective Sept. 1, 2007, https://capitol.texas.gov/BillLookup/History.aspx?LegSess=80R&Bill=HB11.

[2] Alabama Department of Revenue, Alabama House Bill 75, 2017, https://www.revenue.alabama.gov/ultraviewer/viewer/basic_viewer/index.html?form=2022/03/WRAP_ACT_-2017-294.pdf.

[3] While there are unique apportionments for the state sales tax, such as tax collected in tourism development zones, the standard apportionment basis for the use of the 7 percent state sales tax is as follows:

- The 5.5 percent original sales tax rate is distributed as follows:
    - » 4.6030 percent to cities as calculated based on that city's population as a portion of all city residents in the state
    - » 29.0141 percent to the state general fund
    - » 65.097 percent to the K-12 education fund
    - » 0.9185 percent to the state sinking fund
    - » 0.3674 percent to the Tennessee Department of Revenue.
- The 0.5 percent rate increase adopted in 1992 is earmarked for K-12 education.
- The 1 percent increase adopted in 2002 is earmarked for the state general fund.

Any local sales tax applied on a purchase greater than the 7 percent state share (in almost all localities in Tennessee that local tax addition is between 2 percent up to the allowable maximum of 2.75 percent depending on the local government where the purchase was made) is transmitted by TDOR to the appropriate locality.

[4] Methods of Revenue Estimation as posted on the Finance and Administration Budget Division methodology for revenue estimated here: 2024-2025 Seasonal Methodologies for Monthly Estimates [downloaded from the Tennessee Department of Finance and Administration website on Aug. 30, 2024].

Appendix A: Selected wholesaler and retailer survey results

Survey of Tennessee wholesalers and retailers

Comptroller staff surveyed wholesalers and retailers on RAP between May 22 and June 10, 2024. The survey yielded 82 wholesaler and retailer responses of which 43 were wholesalers (17 percent response rate) and 39 were retailers (5.4 percent response rate). The average number of employees of the wholesalers that provided their number of employees in the survey was 86 employees. The average number of employees of retailers that responded to the survey was 387 employees. Given the low response rate, survey responses were not used in this report's conclusions.

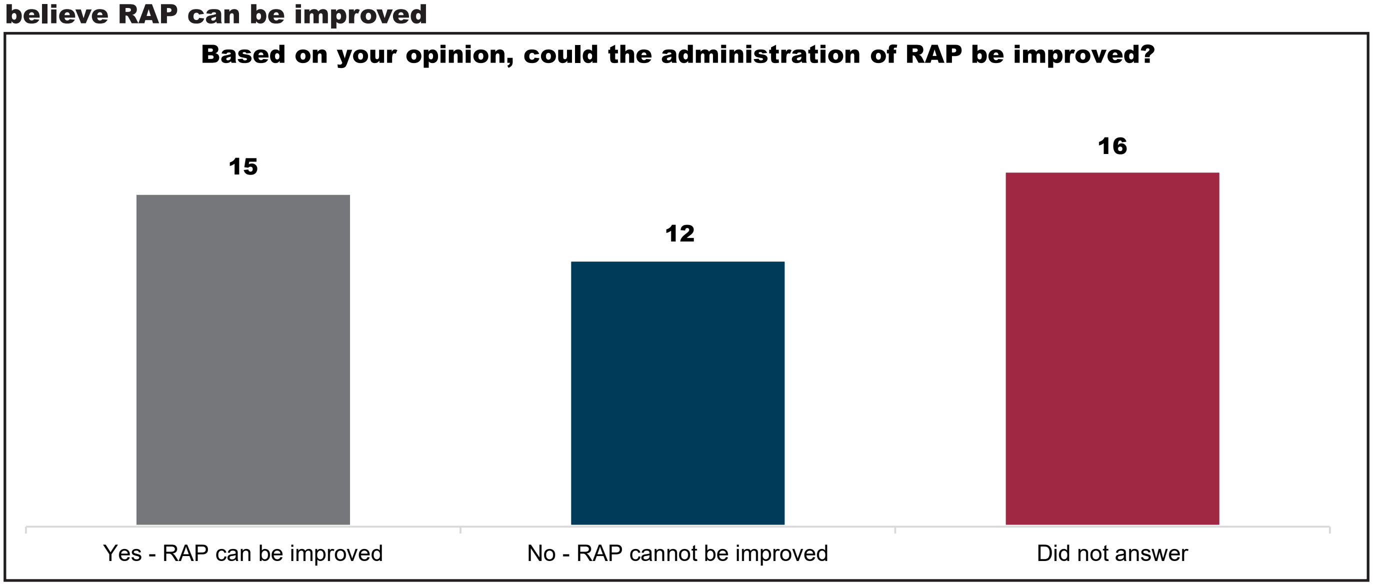
Analysis of wholesaler survey responses

Of the 43 wholesalers that answered the survey, 29 provided the number of employees on their payroll. The mean number of employees at these wholesalers was 86 while the median number of employees was 25, with the range being a low of two employees and a high of 550 employees.

Of the wholesalers that answered the survey, six are wholesalers of beer; 15 are wholesalers of tobacco; 20 are wholesalers of nonalcoholic beverages, candy, snacks, or similar foods; and 13 answered other (e.g., fuel/petroleum/gas [10], food products [1], vape and novelty items [1], contractor of the wholesaler [1]).

Wholesalers that participated in the survey were divided on whether the administration of RAP can be improved, with 35 percent of respondents answering that RAP can be improved and 28 percent of respondents answering RAP cannot be improved (37 percent chose not to respond to this question).

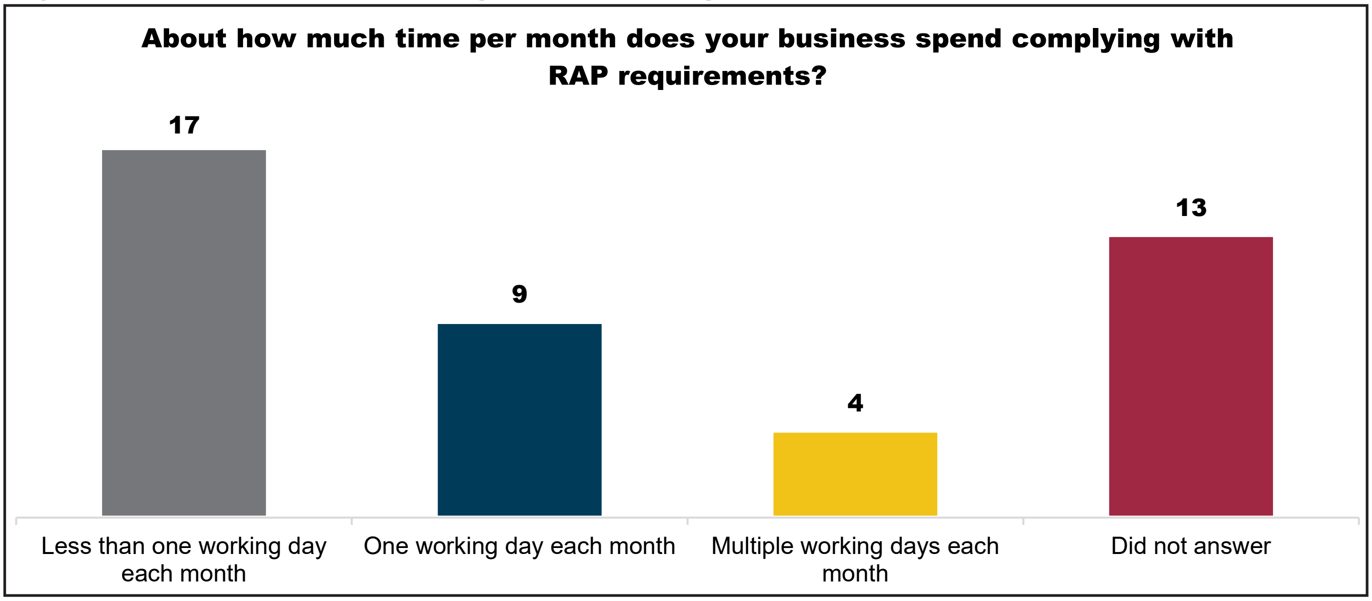
Exhibit 1: Wholesalers that responded to the Comptroller's survey are split on whether they believe RAP can be improved



Note: The survey yielded 82 wholesaler and retailer responses of which 43 were wholesalers (17 percent response rate) and 39 were retailers (5.4 percent response rate). Given the low response rate and therefore the unreliability of attributing the opinions of the respondents of the survey to the broader population of wholesalers and retailers, survey responses were not used in the determination of the conclusions drawn for this report.
Source: Survey results compiled by the Comptroller of the Treasury.

TDOR needs data from wholesalers in order to administer RAP, so their involvement in this process is integral to the effectuation of the program's design. Twenty-six wholesalers indicated that preparing and submitting the sales reports used for RAP to TDOR requires one day or less per month. Four indicated needing multiple days each month to perform this work.

Exhibit 2: The majority of wholesalers that responded to the Comptroller's survey spend one day or less each month preparing and submitting the sales reports used for RAP to TDOR



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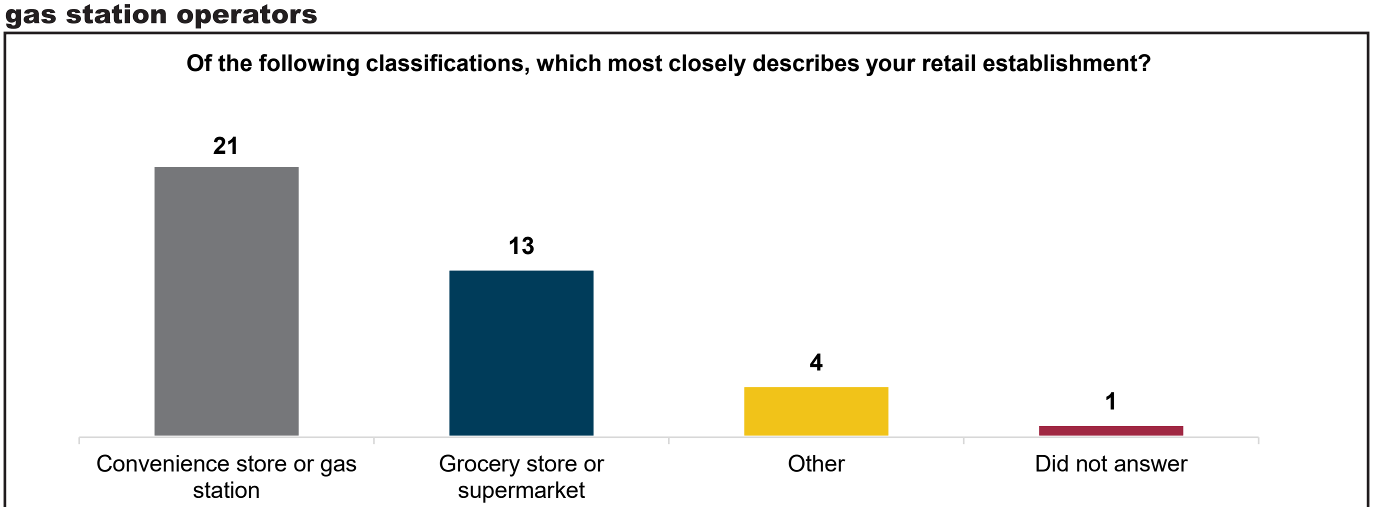
Source: Survey results compiled by the Comptroller of the Treasury.

Analysis of retailer survey responses

Of the 39 retailers that answered the survey, 33 provided the number of employees that were on the payroll of the employer. The mean number of employees at these retailers was 387 while the median number of employees was 50, with a range being a low of two employees to a high of 2,500 employees.

Of those retailers that responded to the survey, almost 90 percent were either convenience store/gas station operators (54 percent) or were grocery/supermarket operators (33 percent).

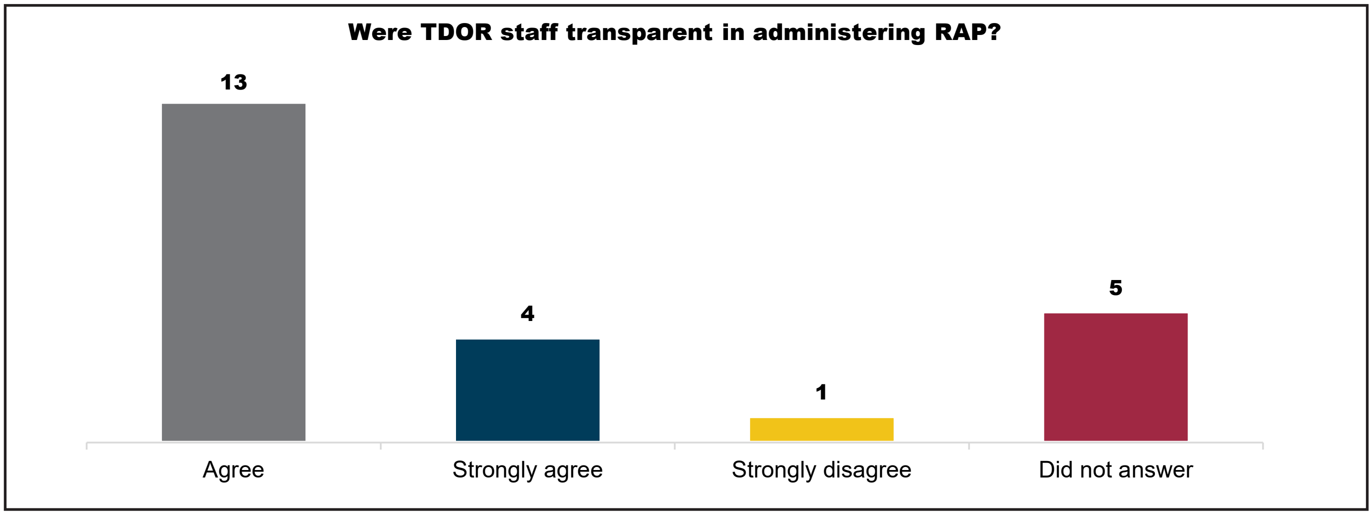
Exhibit 3: Most retailers that responded to the Comptroller survey were convenience store/ gas station operators



Note: The survey yielded 82 wholesaler and retailer responses of which 43 were wholesalers (17 percent response rate) and 39 were retailers (5.4 percent response rate). Given the low response rate and therefore the unreliability of attributing the opinions of the respondents of the survey to the broader population of wholesalers and retailers, survey responses were not used in the determination of the conclusions drawn for this report.
Source: Survey results compiled by the Comptroller of the Treasury.

Retailers that responded were generally supportive of TDOR's transparency in administering RAP, with almost three out of every four respondents agreeing the program has been transparent. One respondent of the 39 respondents strongly disagreed that the program has been transparent.

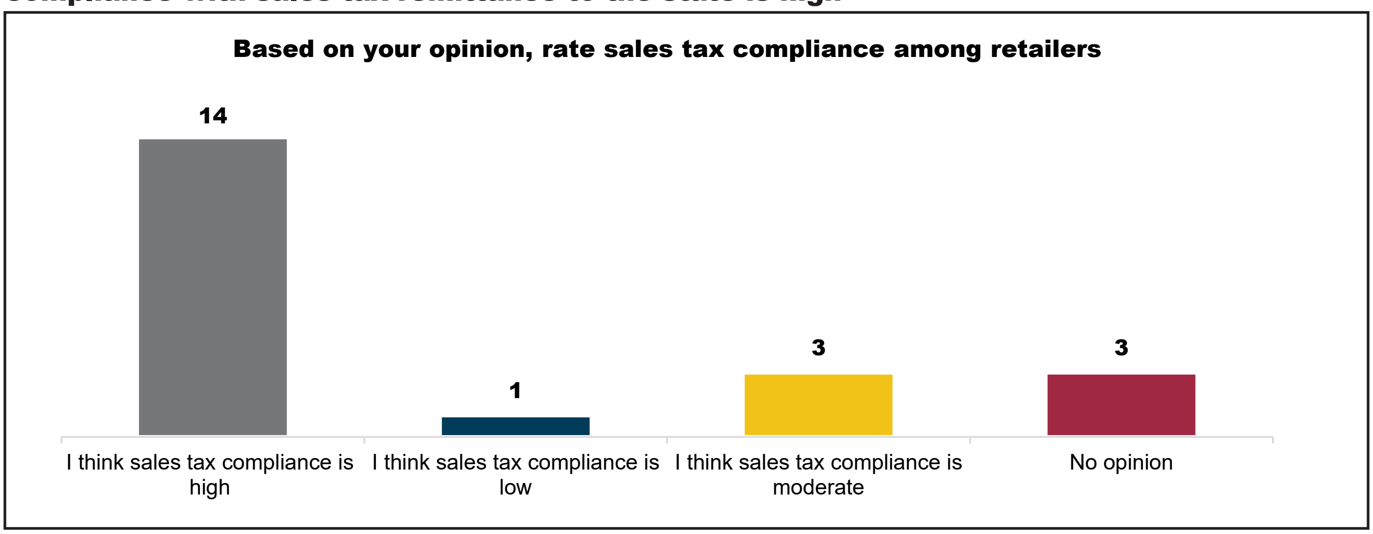
Exhibit 4: The majority of retailers viewed the Department of Revenue as being transparent in the administration of RAP



Notes: (1) The survey yielded 82 wholesaler and retailer responses of which 43 were wholesalers (17 percent response rate) and 39 were retailers (5.4 percent response rate). Given the low response rate and therefore the unreliability of attributing the opinions of the respondents of the survey to the broader population of wholesalers and retailers, survey responses were not used in the determination of the conclusions drawn for this report. (2) This survey question used the Likert scale of: "a. Strongly agree, b. Agree, c. Disagree, d. Strongly disagree." No survey respondents answered "c. Disagree."
Source: Survey results compiled by the Comptroller of the Treasury.

The Comptroller's Office asked retailers about their views on the level of compliance with Tennessee's sales tax remittance law among retailers. Of the retailers that responded, 14 rated compliance as high and four rated it as moderate or low.

Exhibit 5: Most retailers that responded to the Comptroller's survey believe retailer compliance with sales tax remittance to the state is high



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Source: Survey results compiled by the Comptroller of the Treasury.

Appendix B: Autoregressive integrated moving average (ARIMA)

What this statistical approach is:

"ARIMA is a forecasting model that calculates forecasts entirely from past movements of the dependent variable without the use of any independent variables."[AQ] The statistical process is curve-fitting in that it uses current and past values of the dependent variable to produce short-term forecasts. "The use of ARIMA is appropriate when little is known about the dependent variable being forecasted, when an independent variable known to be important cannot be forecasted effectively, or when only a short-term forecast is needed."[AR] "ARIMA may provide short-term forecasts that are superior to other regression models."[AS]

How this approach was applied by TDOR to applicable Tennessee tax revenue collections:

This method of forecasting uses time series data points. In Tennessee, the data points are the taxes paid by retailers subject to RAP. The amount of tax revenue collected in a given fiscal year is compared with the amount the forecasting model estimated should have been collected in that year using prior years of tax return data. ARIMA takes a single data set – the amount of tax revenue reported over time – and projects the expected amount of tax revenue in the future if RAP did not exist.

[A] *Using Econometrics, A Practical Guide*, 4th Edition, Studenmond (2001), p. 500.

[B] Ibid., p. 513

[C] Ibid., p. 513

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